BUDGETING FOR RESEARCH AND DEVELOPMENT IN THE UNITED STATES MARINE CORPS

by

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INTRODUCTION

General

The problem

In this period of Congressional emphasis on the efficient use of appropriated funds, the United States Marine Corps finds itself in the embarrassing position of having an annually increasing amount of unobligated research and development funds.

Since appropriated but unobligated funds represent resources that could be used elsewhere, Congress views such trends with disfavor. As the guardians of the public purse, Congress casts a skeptical eye toward any agency that exhibits such inefficiencies.[1]

To illustrate the magnitude of the problem, the following data are offered. In fiscal year 1964, the Marine Corps had available to it $34,251,000 for research and development purposes. It used only $21,731,000 in that year and carried the remaining $13,520,000 over into fiscal year 1965. Five years later, the amount

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[1]Aaron Wildavsky, The Politics of the Budgetary Process (Boston: Little, Brown and Company, 1964), p. 47.

available to the Corps, for R&D, had grown to [illegible]. Of this amount, $22,302,000 was carried forward to fiscal year 1969.[1]

Importance of the problem

When the obligation rate is used to measure the adequacy of Marine Corps budgeting practices, the results are less than satisfactory.[2] As indicated in Table 1, the Marine Corps used only 54 per cent of the funds available to it in fiscal year 1968.

The efficient use of funds is particularly necessary in the case of the Marine Corps, since it buys the majority of its R&D progress from the other Services and the industrial community. Thus its success depends upon how much is spent and how efficiently it is spent.

Concern over timely obligation of funds.--Department of the Navy activities that share the Research, Development, Test and Evaluation, Navy appropriation are compared with each other on a relative rate of obligation basis. Historically, the Marine Corps has had a significantly lower rate than the other activities sharing the

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[1]Below, p. 7.

[2]The obligation rate is a measurement of the amount of funds obligated from the total obligational authority available to an agency. An obligation is incurred when an order is placed, a contract is awarded, a service received and similar transactions are entered into during a given period requiring future payment of money in an agreed amount.

appropriation. This has been a matter of considerable concern to Marine Corps officials since unobligated balances are reflected on budget documents submitted to the Department of Defense and the Congress. The justifiable belief is that DOD and the Congress may conclude that the unobligated funds represent resources that are not required and are therefore available for recoupment or application to the budget request being reviewed.

Congressional concern over timely obligation of funds.--Wallace states that Congressional subcommittees and committees consider prior year obligation information as some of the most significant data provided them.[1] He states that a budget description of a typical item includes estimates of amounts available for obligation with comparisons against the two fiscal years preceding the year for which the request is being made, a breakdown of obligation by activities, obligation by objects, and analysis of expenditures with comparisons with preceding years.[2]

Shultz, in discussing Congressional budget review procedures, says, "Congress can always cancel spending

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[1]Robert A. Wallace, Congressional Control of Federal Spending (Detroit: Wayne State University Press, 1960), p. 34.

[2]Ibid., p. 41.

authority carried over from earlier years....[1] points out that new appropriations may be postponed until the amounts already authorized are obligated. In discussing the evils of year end rushes to spend money, Shultz indicates that one reason this occurs is that failure to spend would indicate that the appropriations had not been needed. The Congress would then have good reason to approve less for the next year when the need for money may be substantial.

A current example of Congressional concern over unexpended/unobligated balances can be found in the fiscal year 1969 Department of Defense Appropriations Hearings. Congressman George W. Andrews addressed the following comments to Lieutenant General Austin W. Betts, Chief of Research and Development for the U.S. Army.

> What will the unexpended balances be for RDT&E Army, at the end of fiscal year 1968 and at the end of fiscal year 1969, according to your present estimates? What amount remained unexpended at the end of fiscal year 1967? In recent years, what has been the percentage of new obligational authority expended in the same year as appropriated? Give us a table showing this information for the last five years. What efforts have been made in recent years to reduce the requirement for unexpended balances as large as those which have been maintained? Can anything be done about this, or will this level of

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[1] William J. Shultz, American Public Finance (Englewood Cliffs: Prentice Hall, Inc., 1961), p. 112.

unexpended balance always be a part of the [illegible] business?[1]

Department of Defense concern over timely obligation of funds.--The DOD views large unobligated balances with disfavor too. In recent years the Director of Defense Research and Engineering has withheld obligational authority from the Services based on the amount of their unobligated funds from prior years. For example, in fiscal year 1967 DDR&E deferred from obligation $4,018,000 from an approved Marine Corps budget of $32,118,000.[2] In fiscal year 1968, nearly a third of the budget approved by Congress for the Marine Corps was deferred by DDR&E because of large unobligated balances. To be exact, $9,850,000 from an approved total of $32,650,000 was withheld.[3]

Department of the Navy concern over timely obligation of funds.--Obligations are a primary consideration within the Department of the Navy also. All echelons stress the need to obligate funds within the same fiscal year in which they are appropriated.

Within the Marine Corps, the Deputy Chief of

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[1]U.S. Congress, House of Representatives, Department of Defense Appropriations for 1969 (90th Cong., 2nd Sess., 1968), pp. 55-6.

[2]Captain Paul E. Ring, Headquarters, Marine Corps, Arlington, Va., personal interview, October 11, 1968.

[3]Ibid.

Staff (Research, Development and Studies), who [illegible] the Marine Corps portion of the RDT&E,N appropriation, exerts considerable effort to achieve a satisfactory rate of obligation. For example, detailed financial reviews of all R&D programs are conducted regularly in an attempt to ensure that funds are committed in sufficient time to allow negotiation of contracts by the end of the fiscal year. Contracting personnel within the Marine Corps and in other agencies are requested to provide timely, efficient service. Administrative procedures have also been revised to reduce the time lapse from commitment of funds to obligation.[1]

Comparison of Marine Corps obligation rate to total Department of the Navy rate.--Table 1 is a comparison of the Marine Corps obligation rate to that of the total Department of the Navy. The Office of Naval Research prepares and submits management reports containing information similar to that contained in Table 1 to the commands which share the RDT&E,N appropriation. In addition, detailed reports which reflect the obligational status by budget line item are provided to the Assistant Secretary

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[1]Ibid.

TABLE 1

TOTAL OBLIGATIONAL AUTHORITY, TOTAL DOLLAR OBLIGATIONS AND PERCENTAGE OBLIGATED BY THE TOTAL DEPARTMENT OF THE NAVY COMPARED TO THE U.S. MARINE CORPS FISCAL YEARS 1964-1968, INCLUSIVE
(Money Amounts Rounded to Nearest Hundred Thousand)

Fiscal Year	Department of the Navy Total Obligational Authority	Marine Corps Total Obligational Authority	Department of the Navy Obligations	Marine Corps Obligations	Percentage Obligated by the Department of the Navy	Percentage Obligated by the Marine Corps
1964	1,811,631	34,251	1,593,378	21,731	88	63
1965	1,827,417	37,121	1,551,369	21,846	85	59
1966	2,082,400	48,105	1,688,800	35,631	81	74
1967	2,501,625	46,302	2,174,640	33,610	87	73
1968	2,478,659	48,684	2,248,649	26,382	91	54

Source: Office of Naval Research, Washington, D.C., Official Accounting Records.

of the Navy (Research and Development) and Director, Defense Research and Engineering for their use.[1]

The Hypothesis

It is hypothesized that the Marine Corps is deficient in the execution phase of the R&D budget process, as indicated by the obligation rate. It is further premised that the following are contributing causes:

(1) statutory responsibilities for research and development are being exceeded;

(2) requirements and technical documentation is inadequate;

(3) improper programming procedures are being used;

(4) operations and maintenance costs are being budgeted under the guise of research and development;

(5) in-house contracting support is inadequate;

(6) responsibilities for research and development are ambiguous;

(7) the Marine Corps has limited control over funds committed to other Services.

Detailed guidance, reviews by numerous, progressively higher authorities and a reasonably predictable budget cycle

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[1]U.S. Department of the Navy, RDT&E Management Guide (Washington, D.C.: Government Printing Office, 1967), p. 6/5.

tend to preclude the development of severe problems in the formulation and review phase of the Corps' budget process.

Scope and Limitations

Scope

The main thrust of this study will be directed toward existing budgetary policies and practices. Because the programming and budgeting processes are both interrelated and overlapping, some discussion of programming will necessarily be included in the study.

This study will address the two phases of the budget process: formulation and review, which begins when the Navy Comptroller issues a call to the Commandant of the Marine Corps for budget estimates and carries through the appropriation of funds by Congress; and execution, which covers the period during which appropriated funds are used.[1] Procurement of R&D effort will be discussed as an integral part of the execution phase of the budget process.

If this study is to be comprehensive, it is considered essential to determine how the Corps interprets its statutory responsibilities for research and development.

Similarly, the Corps' relationships with the other

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[1]U.S. Department of the Navy, Navy Programming Manual (Washington, D.C.: Government Printing Office, 1969), p. 4/1.

Services have a bearing on its budgetary practices will likewise be included in the study.

Finally, the Corps' internal organization will be examined to determine its effect upon budgetary practices.

Limitations

The most fundamental problem in R&D management, how much to spend on a program, is an allocation problem. Economic theory proposes that we "should" spend on research and development until the marginal gain from expenditures is just equal to the gain from expenditures elsewhere. But in the case of research and development, this formula is difficult to interpret or apply. The gain is uncertain and difficult to predict with accuracy. This is particularly true of exploratory development where the product, if any, will be knowledge--and knowledge sometimes far removed from any practical end use. Calculating gains from R&D is further complicated by the need for discounting. Typically the payoffs from research and development are expected in a more distant future than payoffs from procurement, since there is no enhancement of military capability until the results have been incorporated in operational hardware, procured, and deployed in operational units. These uncertainties make it difficult or, in many cases, impossible to use an explicit economic calculus to determine how much of total resources should be allocated to R&D; how these resources should be divided among the

various kinds of research and development; and which specific projects should be selected.[1]

Methodology and Data Source

Methodology

Owing to the nature and content of this study, it is believed that a combination of time series analysis and correlation analysis is the best means of deriving meaningful results.

Time series analysis will be used primarily to isolate trends in the quantitative data being studied. The data derived through use of this approach will then be studied for characteristics that are suitable for generalization.

Correlation analysis will be used primarily with qualitative data. It is recognized that this method tends to be complicated because the cause and effect relationships in an area such as R&D budgeting are usually both complicated and unclear. However, this method, when supported by the time series analysis technique, should provide data from which one can reach reasonably accurate conclusions.

Data source

This study is based in part on interviews with personnel from the following offices of Headquarters,

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[1]Charles J. Hitch and Roland N. McKean, The Economics of Defense in the Nuclear Age (New York: Atheneum, 1965), pp. 247-8.

Marine Corps: Deputy Chief of Staff (Research, Development and Studies), Deputy Chief of Staff (Air), Quartermaster General and the Fiscal Division.

Additionally, data were drawn from Congressional, Department of Defense, Joint Chiefs of Staff, Department of the Navy, and Marine Corps publications and directives.

Authoritative writings in the fields of budgeting, R&D management and Marine Corps history were also utilized.

Official accounting data were obtained from the Fiscal Division of Headquarters, Marine Corps and from the Office of Naval Research.

Anticipated Contributions of Study

The main purpose of this study will be to identify dissonant management control problems as they relate to budgeting, rationalize as to their existence, determine their severity and suggest recommendations for their improvement.

Recently, Management Technology, Incorporated conducted a comprehensive study of the Marine Corps R&D program.[1] While Management Technology examined the programming/budgeting phase of the R&D management process, it concentrated the preponderance of its efforts in other areas. My purpose is not to attempt to prove or disprove

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[1]This study was sponsored by the Office of Naval Research under ONR contract number N000 14-67-C-0509. It was completed on July 14, 1967.

the findings of the Management Technology [illegible] I will concentrate my study on the budgeting aspects of the management control process.

Another recently conducted study concluded that the Marine Corps was a laggard in the R&D arena.[1] While I do not disagree with that conclusion, I do disagree with the recommendations proposed to achieve a sound, responsive R&D program within the Corps. I intend to show that a larger budget is not necessarily the means to a better Marine Corps R&D program.

Furthermore, I plan to demonstrate that the above recommendation and its attendant implications are contrary to the popular conception of the Corps as well as in direct conflict with the Corps' statutory responsibilities.

Organization of Study

Parameters

Crucial to any discussion of budget policy is a knowledge of the administrative and political processes through which budgets are, in fact, formulated, reviewed and executed.[2] The budgetary process as practiced by the

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[1]Douglas G. Murphy, "Management Control of Research and Development in the United States Marine Corps" (unpublished M.B.A. thesis, The George Washington University, 1968), pp. 4-6.

[2]David J. Ott and Attiat F. Ott, Federal Budget Policy (Washington, D.C.: The Brookings Institute, 1965), p. 16.

Marine Corps for research and development will be [illegible] confines of this study.

Procedure

This study will attempt to describe the pressures, forces, individuals and offices involved in making the many difficult decisions that go into the final Marine Corps budget. Having described the budgetary process as the Marine Corps practices it, it will be necessary to analyze present policies and practices to identify areas of conflict and to rationalize their existence. To the extent possible, data will be quantified and conclusions will be based upon them. Where this is impractical, conclusions will be based upon discursive reasoning and synthesis of data.

Once problem areas have been identified and their existence explained, recommendations will be made to lessen their effect. It is recognized that any deductions contained in the study are susceptible to challenge. However, it is believed that they can serve a useful purpose if only by focusing attention on problem areas.

Sequence

The study comprises five chapters.

Chapter I introduces the study.

Chapter II discusses the formulation and review phase of the budget process. Included in this chapter is an explanation of the place and importance of budgeting in

the management control process and a discussion of the Department of the Navy, Department of Defense and Federal officials and agencies involved in the research and development budgetary process as it affects the Marine Corps. The program/budget review cycle is illustrated, and the justification process is explained. Finally, concepts of budgeting are discussed and conclusions are drawn as to how effectively the Marine Corps employs these concepts.

Chapter III deals with problem areas such as Marine Corps statutory responsibilities for R&D and relations with other Services which have an impact on the Corps' budgetary practices.

Chapter IV is concerned with the execution phase of the budget process. Topics covered in this chapter include the use of the obligation rate as a measurement of managerial effectiveness and efficiency and reprogramming procedures.

Chapter V contains a summary and conclusions drawn from the data presented in the preceding four chapters.

CHAPTER II

FORMULATION AND REVIEW OF THE BUDGET

Place and Importance of Budgeting in the Management Control Process

The budget process is the final phase of the Planning/Programming/Budgeting System (PPBS).[1] The PPBS is a set of procedures receiving increasing use and importance in recent years in the preparation of agency budgets, which specify program objectives in quantitative terms, measure benefits, and seek least-cost solutions through the budget process.[2] The Corps' R&D budget is prepared annually and expresses the financial requirements necessary to support approved programs which were developed during preceding phases of planning and programming. Development, presentation and justification of the budget is a process which begins eighteen months before the

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[1] U.S. Department of the Navy, Navy Programming Manual (Washington, D.C.: Government Printing Office, 1968), p. 4/1.

[2] Report of the President's Commission on Budget Concepts, David M. Kennedy, chairman (Washington, D.C.: Government Printing Office, 1967), p. 100.

start of the fiscal year and extends to [illegible] Appropriation Act.[1]

Relation between programming and budgeting

Programming has been characterized as the bridge between planning and budgeting. It bonds the PPBS process into one integrated whole.

Programming and budgeting should be regarded as different but complementary components of the same operation. Every organization finds it necessary to have an annual budget that represents a detailed and feasible plan of action for the ensuing year. Every organization, however, must look beyond the next year, even to make coherent plans for that year. Programs and budgets should clearly be consistent with each other. Departures of the budget from the program call for revisions of the program, and program revisions call for changes in the budget.[2]

Importance of the budgetary process

Programs compete for approval and implementation within the framework of the budget formulation process.

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[1]U.S. Department of the Navy, RDT&E Management Guide (Washington, D.C.: Government Printing Office, 1967), p. 4/1.

[2]Arthur Smithies, "Conceptual Framework for the Program Budget," in Program Budgeting, ed. by David Novick (Washington, D.C.: Government Printing Office, 1965), pp. 18-9.

Just as plans are meaningless unless they win [illegible] for inclusion in the Five Year Defense Program (FYDP), programs must win inclusion in the budget. In this continuous process, plans are translated into programs and selected programs are incorporated into budgets.

Approval of a program in the FYDP through the Program Change Request (PCR) is not an automatic guarantee that the program will be funded. The Marine Corps was made painfully aware of this in fiscal year 1968 when DDR&E omitted from the final Marine Corps budget several million dollars from the Marine Tactical Data System project that had previously been approved in a PCR. Subsequent efforts by the Corps to have the funds restored were unsuccessful. The rationale for not automatically funding every program in the FYDP is based on economic factors. The budget is constrained historically by estimated national dollar resources irrespective of the total obligational authority approved for the budget year in the FYDP. Since the magnitude of resources which can be allocated to defense in any given fiscal year is usually less than the total of the programs approved in the FYDP, some programs must necessarily be reduced or deleted when the budget is actually formulated. Programs may be reduced or deleted entirely to reduce the overall defense budget, or to provide for other programs of higher pri-

ority, or because of increased costs of other programs in the budget.[1]

After approval, the budget becomes the actual framework for day-to-day management. The First Hoover Commission emphasized this fact in 1949 when it stated: "The budget and appropriation process is the heart of management and control...."

Program/budget structure.--Marine Corps R&D funds are appropriated by Congress as part of the Research, Development, Test and Evaluation, Navy (RDT&E,N) appropriation. This appropriation is further classified into eight principal budget activities:

(1) Military Sciences,

(2) Aircraft and Related Equipment,

(3) Missiles and Related Equipment,

(4) Military Astronautics and Related Equipment,

(5) Ships and Small Craft and Related Equipment,

(6) Ordnance, Combat Vehicles, and Related Equipment,

(7) Other Equipment, and

(8) Program-Wide Management and Support.[2]

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[1] RDT&E Management Guide, p. 4/2.

[2] U.S. Department of Defense, Reporting of Research, Development, Test and Evaluation Program Information, DOD Instruction 3200.6, June 7, 1962, pp. 2-3.

A review of the Marine Corps budget reveals that the Corps has programs in budget activities 1, 5, 6, and 7.

Within the budget activities cited above, the Corps has thirteen program elements. Program elements are the smallest subdivisions of the R&D program considered in the DOD programming system. They are the basic building blocks of the Five Year Defense Program. These program elements are in turn subdivided into projects. In some cases, projects are further broken down into task areas. Task areas encompass development effort directed toward a specific objective.[1]

The RDT&E,N program/budget structure follows:

Five Year Defense Program,
major programs of the FYDP,
appropriation,
budget activities,
program elements,
projects, and
task areas.

Observation.--An examination of the Corps' fiscal year 1969 budget reveals a total of fifty-eight active project/task areas. These equate to line items on budget

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[1]U.S. Department of the Navy, Exploratory Development Program Planning Structure, NAVMAT Instruction 3910.12A, December 23, 1968, p. 2.

requests submitted to higher authorities. As such [illegible] must be justified in writing several times during the programming/budgeting cycle.

The Marine Corps budget contains funds in the following categories: Exploratory Development, Advanced Development, Engineering Development, Operational Systems Development and Management and Support. No funds are budgeted for Research.

The budgetary process

The budget formulation process is characterized by successive reviews. Each succeeding review generally considers a broader context. It is also a characteristic in this process that many items proposed for approval are reduced or eliminated. A current example of this is the progression of the Corps' fiscal year 1970 R&D program from initial internal Marine Corps compilation through OSD/BOB review:

(1) initial internal Marine Corps compilation--$63,226,000,

(2) Marine Corps submit to Secretary of the Navy--$53,213,000,

(3) Secretary of the Navy submit to OSD/BOB--$46,800,000, and

(4) OSD/BOB submission to the Congress--
$37,800,000.[1]

Observation.--Though it is possible to criticize the budget formulation process on the grounds of time and talent required, it does serve essential purposes. The process is a means of providing the best possible military worth and program balance within the limits of anticipated resources. Since funds are limited and have to be divided in one way or another, the formulation process becomes a mechanism for making choices among alternatives.

Justification

Justification is closely related to the formulation process. The Corps must support, in writing, each line item included in its budget request to higher authority.[2] Considerable effort is expended in this area. To illustrate, fifty-eight line items were justified in the fiscal year 1969 budget. Each item was justified several times to meet the varying format requirements of the numerous reviewing authorities. The problem becomes acute when one considers that it is not unusual to be operating under one budget, defending another in Congress, and preparing for a third. Nonetheless, the justifica-

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[1]Mary L. Vroman, Headquarters, Marine Corps, Arlington, Va., personal interview, February 13, 1969.

[2]RDT&E Management Guide, p. 4/3.

tion process serves both to support the [illegible] given item in the Corps' program and to indoctrinate higher level officials in the details of the estimates they will in turn submit to higher echelons and be called on to justify.

Budget justification is designed to demonstrate that the proposed estimate is:

(1) within the framework of the law and approved administrative guidelines;

(2) essential to the effective performance of the mission assigned;

(3) the most economical and effective method of accomplishing its purpose;

(4) feasible with respect to timing and the availability of resources; and

(5) substantiated on its merits independent of needs for prior years.[1]

Reclama

The reclama is closely related to budget justification. A reclama is a formal appeal in the DOD decision-making process through which an issue that has been disapproved, in whole or part, may be resubmitted for further consideration. Generally, reclamas require improved justification. The reclama process makes it

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[1] Ibid.

possible to salvage worthwhile programs which were eliminated by reviewing authorities only because of inadequate justification.[1]

Function and source of guidance

Guidance plays an important part in the budget formulation process. It is both substantive and procedural.

Procedural guidance.--Uniformity in terminology, classifications and budget submission procedures is the goal of procedural guidance. The Marine Corps receives such guidance from the Office of Naval Research.[2]

Substantive guidance.--This type of guidance concerning overall budget amounts and particular programs is developed at all levels and issued to subordinate echelons. Guidance initially comes from the President based on various monetary and fiscal policy considerations as well as assessment of the international situation. Broad guidance from higher echelons is translated into increasingly specific guidelines at lower levels. The Corps receives its most specific substantive guidance from the Office of

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[1] Navy Programming Manual, p. D/11.

[2] U.S. Department of the Navy, Assignment of Responsibilities for Research, Development, Test and Evaluation, SECNAV Instruction 5430.67, June 29, 1964, pp. 10-12.

Deputy Chief of Naval Operations (Development, [illegible] on behalf of the ASN (R&D).[1]

Supra-Navy Participants in the RDT&E Budgetary Process

Importance of discussion

Several Federal officials and agencies above the Department of the Navy help shape the Corps' R&D budget. A brief discussion of the role played by each official or agency follows. It is believed that this discussion is necessary if one is to understand the constraints within which the Corps' R&D budget is formulated and reviewed.

Congress

Congress takes a detailed interest in the content of military programs and their costs. Budget estimates are considered by both the Armed Services Committees and the Appropriations Committees of both the House of Representatives and the Senate, who hold formal hearings with OSD and service representatives. The Deputy Chief of Staff (Research, Development and Studies) is the Marine Corps' representative at these hearings. The Armed Services Committees are responsible for authorizing legislation to permit appropriations to be made, whereas the Appropriations Committees are responsible for appro-

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[1] RDT&E Management Guide, p. E/17.

priation of funds within the amounts established by the authorizing legislation.[1]

The general attitude displayed by House Appropriations Committees toward an agency's budget request is one of skepticism. Their prevailing role is that of guardian of the taxpayer's money. Studies have shown that these committees reduce budget requests over 75 per cent of the time.[2]

On the other hand, a member of the Senate Appropriations Committee is likely to conceive of his proper role as the responsible legislator who sees to it that the irrepressible lower House does not do too much damage to constituents or to the national interest. Senate hearings normally follow the House hearings. They usually provide an opportunity for agencies to appeal to the Senate Committee for restoration of reductions imposed by the House Committees.[3]

President

The President is responsible for presenting an

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[1] Ibid., pp. 4/5-4/6.

[2] Richard F. Fenno, Jr., The Power of the Purse: Appropriations Politics in Congress (Boston: Little, Brown and Company, 1966), p. 312.

[3] Aaron Wildavsky, The Politics of the Budgetary Process (Boston: Little, Brown and Company, 1964), pp. 51-2.

Executive Budget to Congress. In preparation, the President, through the Bureau of the Budget, reviews, revises and approves the estimates of the military departments.[1] The Corps' budget request is viewed as an integral part of the Department of the Navy request.

Bureau of the Budget

In June of each year, the Bureau begins to construct the framework of budget policy for the forthcoming fiscal year. Through conferences, secretaries of the military departments are afforded an opportunity to indicate their spending needs. After the Bureau examines these needs in the light of the overall revenue and expenditure outlook, it issues a policy letter containing a budget ceiling to the military departments. Next, it issues a "call for estimates" which specifies the format, content and date for submission of final estimates to the Bureau. The Military Division of the Bureau then reviews all of the budget estimates of the military departments, centering its attention on the level of the program.[2]

Secretary of Defense

The Secretary of Defense participates actively in the budgetary process. He, or his deputy, issue all

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[1] Ibid., pp. 182-5.

[2] Jesse Burkhead, Government Budgeting (New York: John Wiley & Sons, Inc., 1963), pp. 90-1.

Program/Budget Decisions reflecting major decisions on the budget. The Secretary also plays a major role in the justification of the budget before Congressional committees. For example, the Secretary annually provides detailed explanations of major Service programs as well as briefings on overall R&D policy matters to the Senate Armed Services Committee.[1]

Director of Defense Research and Engineering

Under the direction, authority and control of the Secretary of Defense, the Director of Defense Research and Engineering supervises all R&D activity in the Department of Defense. He reviews projects, programs and objectives of programs of the military departments. He also recommends to the Secretary of Defense appropriate funding for research and development, including allocations from the Emergency Fund, Department of Defense. Program review is the principal mechanism through which DDR&E exercises his responsibilities in relation to service programs. The DDR&E also develops guidelines for submission of the program underlying the R&D budget estimates and acts for the Secretary of Defense in the review and markup of budget submissions.[2]

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[1] U.S. Department of Defense, Statement by Secretary of Defense McNamara on Fiscal Year 1969 Program and Budget (Washington, D.C.: Government Printing Office, 1968), pp. 149-61.

[2] RDT&E Management Guide, p. 4/5.

Assistant Secretary of Defense (Comptroller)

Under the Secretary of Defense, the Assistant Secretary of Defense (Comptroller) is assigned responsibility for supervising and directing the preparation of the budget estimates of the Department of Defense. He is responsible for establishing principles, policies and procedures concerning preparation and execution of budget functions applicable to the DOD. He is also responsible for the integrated programming system, including maintaining and updating the Five Year Defense Program.[1]

Assistant Secretary of Defense (Systems Analysis)

Department of Defense management embodies a planning/programming/budgeting process. The preparation and justification of the budget rests upon planning and programming. In 1965, the increasing importance of systems analysis in planning was recognized in the establishment of the office of Assistant Secretary of Defense (Systems Analysis). Responsibilities of the ASD (SA) include:

(1) reviewing quantitative requirements for forces, weapons systems, equipment and personnel;

(2) assisting the Secretary of Defense in

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[1] Ibid.

initiating, monitoring and reviewing requirements studies and cost effectiveness analyses;

(3) participating in all phases of the planning/programming/budgeting process.[1]

Department of the Navy Participants in the R&D Budgetary Process

Need for discussion

The Secretary of the Navy and subordinate officials have a major influence on the formulation and justification of Marine Corps R&D budget submissions. A brief discussion of the participants involved is helpful in understanding the context in which the Corps develops and justifies its R&D budget.

Secretary of the Navy

The Secretary of the Navy is responsible for the preparation and submission to the Secretary of Defense of the Department of the Navy budget, for its justification before Congress and subsequent administration of the funds thereby made available. He is assisted in discharging these responsibilities by the officials and organizations discussed below.[2]

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[1]U.S. Department of Defense, Assistant Secretary of Defense (Systems Analysis), DOD Directive 5141.1, September 29, 1965, pp. 1-4.

[2]RDT&E Management Guide, p. 4/6.

Comptroller of the Navy

Under the Secretary of the Navy, and subject to the general policies of the Assistant Secretary of Defense (Comptroller), the Comptroller of the Navy develops and establishes the basic fiscal policies of the Department of the Navy. He formulates principles and policies and prescribes procedures in the area of budget preparation and administration.

This office also provides staff services to the Secretary of the Navy for the translation of Navy and Marine Corps policies, plans and programs into a formal budget for presentation to the Secretary of Defense, the Bureau of the Budget and the Congress. The Comptroller of the Navy issues binding guidance to the Navy and Marine Corps on the form and content for submission of budget estimates and supporting data and on the availability of funds and the purposes for which funds may be spent.[1]

Assistant Secretary of the Navy (Research and Development)

The ASN (R&D) is authorized and directed to act for the Secretary of the Navy in formulating and promulgating policies and guidance governing Department of the Navy planning and programming. He also evaluates and

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[1] Ibid.

recommends appropriate funding for Department [illegible] R&D programs.[1]

In carrying out these functions, ASN (R&D) is assisted by the Chief of Naval Research, the Deputy Chief of Naval Operations (Development), the Chief of Naval Development and the Marine Corps' Deputy Chief of Staff (Research, Development and Studies).

Chief of Naval Research

The Chief of Naval Research provides ASN (R&D) budgeting, accounting and related reporting services required for his management and control of the RDT&E,N appropriation.

The Office of Naval Research Comptroller prescribes budget policies and procedures for the RDT&E,N program. He provides guidance and issues instructions to the Navy and Marine Corps for preparation of the budget in support of the approved program. He coordinates the preparation of the budget estimates for submission, after review and approval of ASN (R&D), to the Secretary of the Navy, OSD, BOB and Congress. The ONR Comptroller also consolidates the "Program Project Listings" for the Department of the Navy RDT&E program, but he does not perform the program

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[1] Assignment of Responsibilities for Research, Development, Test and Evaluation, pp. 1-10.

evaluation required to reduce the program as required by funding constraints.[1]

Chief of Naval Operations

The Chief of Naval Operations is responsible for planning and determining the material support needs of the Operating Forces of the Navy (less Fleet Marine Forces and other assigned Marine Forces), including equipment and weapons or weapons systems.

The CNO is also responsible for the overall coordination, content, and priorities of the programs the budget is designed to support. He therefore has a vital interest in the development and defense of the Department of the Navy R&D budget.[2]

Deputy Chief of Naval Operations (Development).--The DCNO (D) plays a dual role in preparation of the R&D program/budget estimates for the Department of the Navy. He coordinates the programs for Advanced Development, Engineering Development and Operational Systems Development for the ASN (R&D).

In addition, he provides the staff assistance to ASN (R&D) to assemble, integrate and coordinate the Department of the Navy program/project listings of the Navy and

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[1] Ibid., pp. 4-5.

[2] Ibid., pp. 8-9.

Marine Corps. In carrying out this function, [illegible] orates with the Chief of Naval Material, the Chief of Naval Research and the Marine Corps' Deputy Chief of Staff (Research, Development and Studies).

The DCNO (D), acting as staff for ASN (R&D), prepares RDT&E program guidance for use by the Navy and Marine Corps. The DCNO (D) staff reviews, for program content, the narrative justification consolidated by the Chief of Naval Research. This staff coordinates the presentation of the RDT&E,N program before DDR&E, the ASD (Comptroller) and the BOB. DCNO (D) also participates in the preparation of reclama actions resulting from the budget mark-up by the Comptroller of the Navy, the Secretary of the Navy or the Secretary of Defense. Along with the ASN (R&D) and the CNR, the DCNO (D) is a principal witness before Congressional Committees in justifying the RDT&E,N program.[1]

Chief of Naval Operations Advisory Board (CAB).--The CNO Advisory Board was created expressly to ensure that top military officials considered the Department of the Navy's program decisions and their budgetary and manpower implications. An important function of the CAB is to examine the Department of the Navy's R&D budget submission, recommending adjustments as necessary, in order

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[1] RDT&E Management Guide, p. 4/7.

to reduce to a minimum differences between it and the Navy Comptroller's recommendations to the Secretary of the Navy.[1]

The Assistant Commandant of the Marine Corps is a designated member of the CAB.

Navy Program Planning Office.--This office is responsible for the integration of planning, programming, budgeting and appraising within the Office of the Chief of Naval Operations. It also supports the Chief of Naval Operations by reviewing programs and financial decisions to evaluate their impact on the total Department of the Navy program.[2]

Commandant of the Marine Corps

Assisted by the Deputy Chief of Staff (Research, Development and Studies), the Commandant of the Marine Corps assembles, integrates and coordinates the Marine Corps' annual RDT&E program for submission to the ASN (R&D) and CNO for coordination and integration into the Department of the Navy's RDT&E program/project listings.[3]

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[1]U.S. Department of the Navy, Chief of Naval Operations Advisory Board, OPNAV Instruction 5420.2E, March 5, 1963, pp. 1-4.

[2]RDT&E Management Guide, p. 4/7.

[3]Ibid.

Chief of Naval Material (CNM)

The CNM is responsible for planning for the utilization of resources in performing work to meet those material support needs of the Operating Forces of the Navy and of the Marine Corps which are provided by the Naval Material Command. The CNM's Deputies for Programs and Financial Management and for Development assist the CNM in discharging his responsibilities in this area through the budget process.[1]

Deputy Chief of Naval Material (Programs and Financial Management).--This office assists the Chief of Naval Material in discharging his budgetary responsibilities by providing consistent and uniform policies and procedures for programming, budgeting, financial reporting, and all facets of program and financial management.[2]

Chief of Naval Development.--The CND coordinates the Department of the Navy's Exploratory Development program for the ASN (R&D). This office is also responsible for preparation of justification in support of that program and for assisting the ASN (R&D) in the presentation and defense of the program at all higher levels of review.[3]

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[1] Ibid.

[2] Ibid., p. 4/8.

[3] Ibid.

Program/Budget Review Cycle

Inasmuch as the budgetary process is in a state of transition and the future cannot be accurately predicted, the Department of the Navy uses a flexible plan based upon OSD guidance. Figure 1 is a representative Department of the Navy Program Budget Review Cycle for a calendar year. Generally, the steps portrayed are completed in the sequence presented; however, the dates of their occurrence are subject to change from year to year.

Justification of the Budget before Congressional Committees

Following the President's budget message in January of each year, the Corps' R&D budget estimate is sent to the Senate and House Armed Services and Appropriations Committees for review and to be used as a basis for formal hearings for authorization and appropriation legislation.

The same back-up material is submitted to all four committees. This includes narrative justification books and individual descriptive data sheets which provide full details on all line items having a value in the budget of $3,000,000 or more. In addition, project listings are usually submitted which show the line item detail comprising the programs for the prior, current and budget years.[1]

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[1] Reporting of Research, Development, Test and Evaluation Program Information, pp. 1-11.

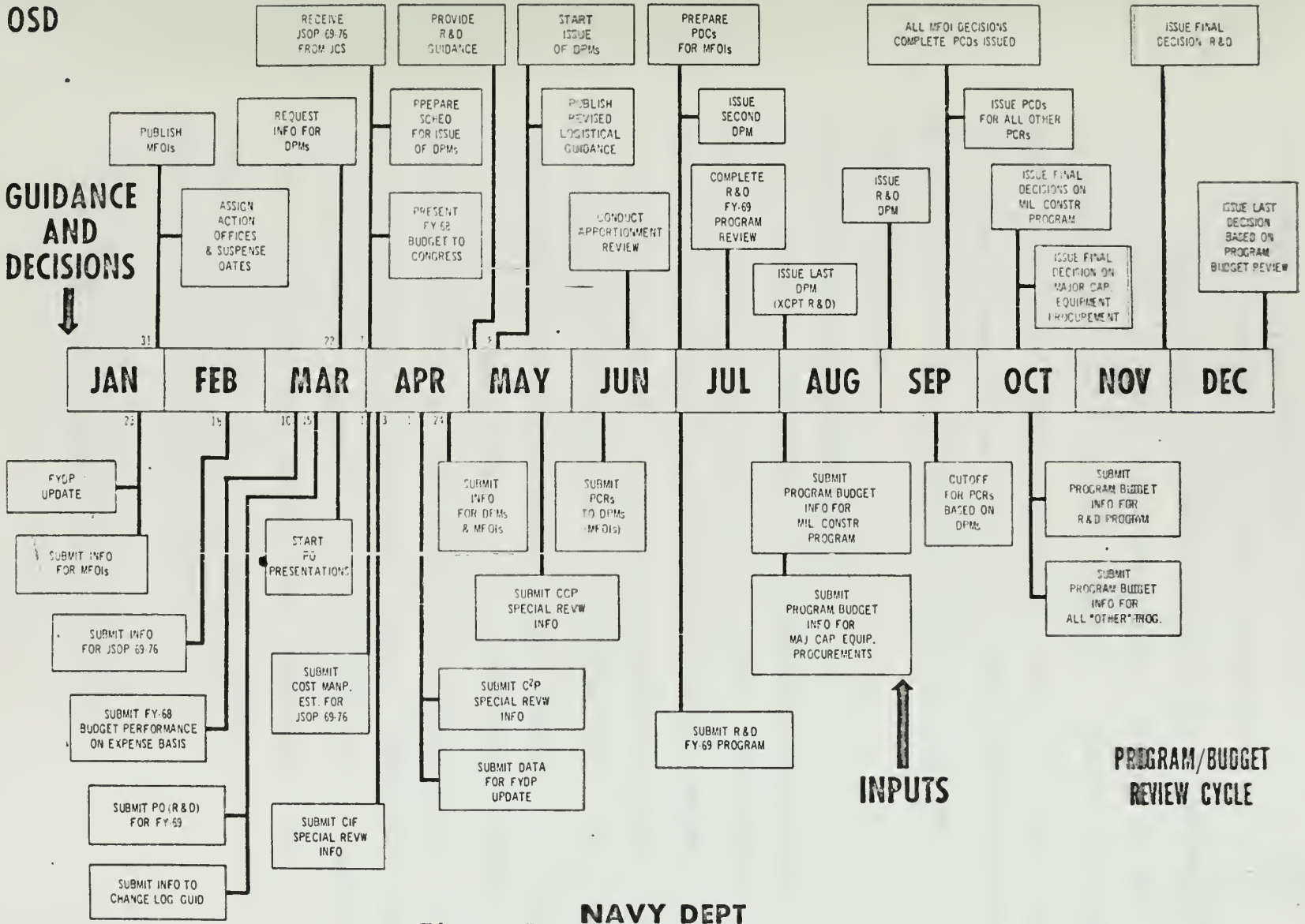

Figure 1.--DEPARTMENT OF THE NAVY PROGRAM/BUDGET REVIEW CYCLE

Source: RDT&E Management Guide

The Marine Corps' requirements are submitted as a part of the total Department of the Navy estimate.

Observation.--Although Marine Corps programs can be identified through terminology and a coding system, the manner in which they are included in the total Department of the Navy budget submission serves to screen them from view. Thus, it is likely that the Corps' programs receive less scrutiny than they would if they were submitted separately.

Armed Services Committee action

Initial hearings on the RDT&E,N appropriation are held by the Subcommittee on Research and Development of the House Armed Services Committee. The recommendations of this subcommittee, if accepted by the full Armed Services Committees, are acted upon by the full House. The Senate Armed Services Committee then conducts its hearings and reports recommendations on the authorization bill as passed by the House. Where there are differences between the bills passed by each house, the two committees meet and arrive at an agreed joint position which is submitted to the two houses for approval and enactment. The authorization as enacted establishes the maximum amount which may be appropriated by the Congress.[1]

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[1] RDT&E Management Guide, p. 4/8.

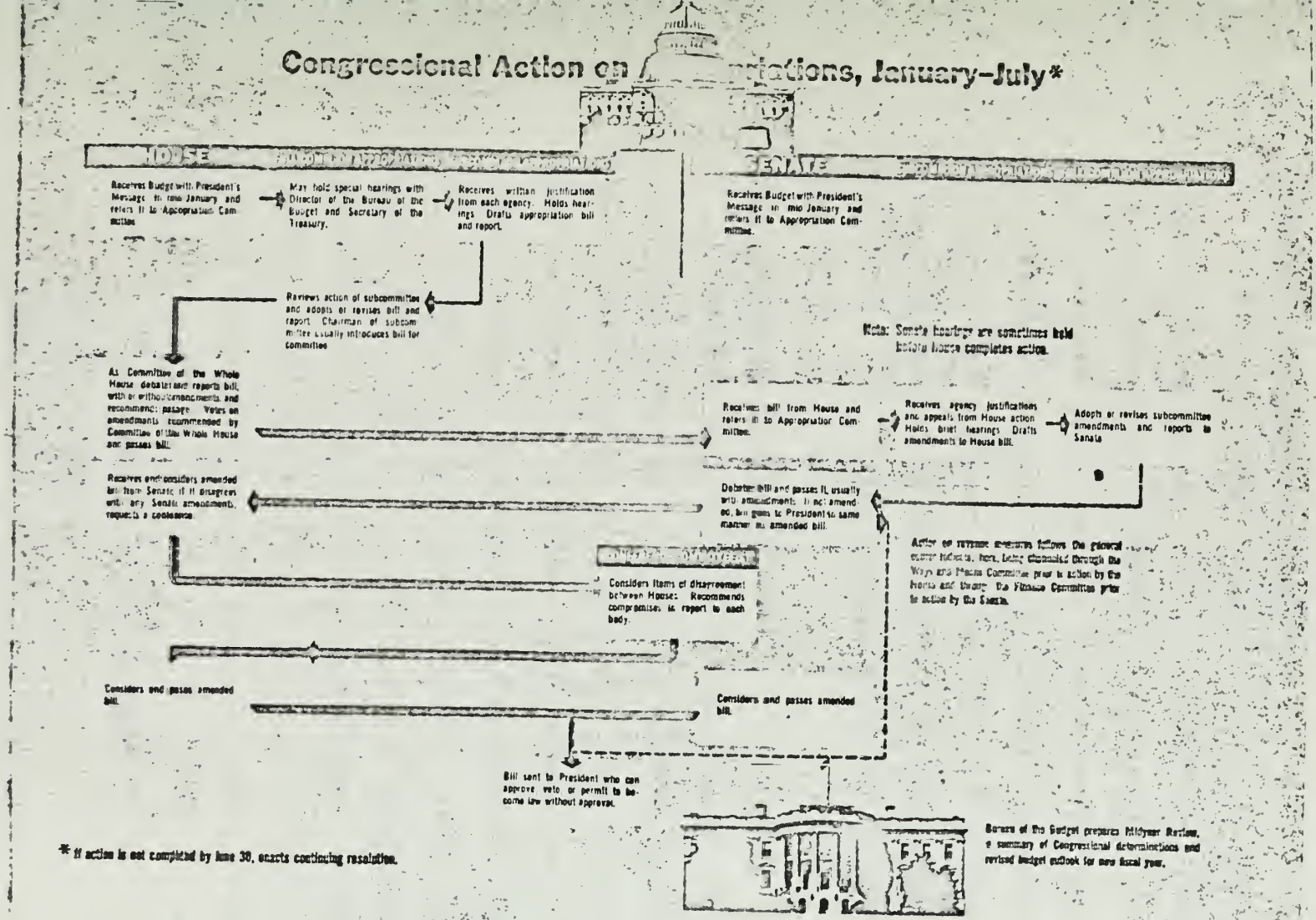

Figure 2

CONGRESSIONAL ACTION ON APPROPRIATIONS, JANUARY-JULY

Source: RDT&E Management Guide

Appropriations Committee action

As in the Armed Services Committee procedures, tradition requires that the House consider the appropriation bill before it is passed to the Senate.[1] The Senate Committee then exercises its prerogatives of disagreeing with the House decision.[2] Differences between the Senate bill and House bill are resolved in a conference meeting between designated representatives of each House.[3] Upon approval by both Houses and signature by the President, the bill becomes law.

Preparation for hearings

Every attempt is made to be prepared for hearings so that all questions of Committee members may be answered with a minimum number of witnesses. This attempt to hold down the number of witnesses requires more extensive preparation for the few witnesses who provide the main testimony. Within the Marine Corps, this entails extensive effort on the part of the staff of the Deputy Chief of Staff (Research, Development and Studies). Summarized financial and technical data on each line item in the budget are prepared for use by the DC/S (RD&S) at the hear-

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[1]Fenno, The Power of the Purse, p. 1.

[2]Ibid., p. 503.

[3]Ibid., p. 646.

ings. In addition, answers to anticipated questions on items not included in the budget are also prepared.[1]

Conduct of hearings

At the authorization hearings, the Secretary of Defense and members of the Joint Chiefs of Staff testify on the overall program. The Director of Defense Research and Engineering is the principal witness in support of the RDT&E program of the Department of Defense before the authorization and the appropriation committees.

The Assistant Secretary of the Navy (Research and Development) is the principal witness in support of the Department of the Navy R&D program and appropriations requests before the authorization and appropriation committees. He is supported by a limited number of his top advisors.[2]

Pertinent Concepts of Budgeting

Budgeting is incremental

The most important determining factor of the size of this year's budget is last year's budget. Most of a

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[1]Records of the DC/S (RD&S) indicate that in fiscal year 1968 questions were anticipated on the M-16 rifle. Accordingly, data were prepared for the DC/S (RD&S) to respond to questions on this subject even though no funds were requested for it by the Corps.

[2]During the fiscal year 1969 DOD appropriations hearings, ASN (R&D) was accompanied by DCNO (D), DCNM (D), CNR, DC/S (RD&S) and NAVCOMPT. (U.S. Congress, House of Representatives, Department of Defense Appropriations for 1969, 90th Cong., 2nd Sess., 1968), p. 222.

budget is the product of previous decisions. There is very little flexibility in the budget because of commitments made years ahead. Many items in the budget are standard and are simply reenacted every year unless there is a special reason to challenge them. There are programs no one challenges any more. An example is the Federal Bureau of Investigation. Congress usually offers this agency more than it requests. As a practical matter, at any one time, after past policies are paid for, a rather small percentage -- seldom larger than 30 per cent -- is within the realm of anybody's (including Congressional and Bureau of the Budget) discretion.[1]

Budgeting is incremental rather than comprehensive. A budget is seldom reviewed as a whole every year in the sense of reconsidering the value of all existing programs as compared to all possible alternatives. Instead, it is based on last year's budget with most attention given to a narrow range of increases or decreases.[2]

Fair share

Participants in the budgetary process often speak of having arrived at an estimate of what was the "fair

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[1]Fenno, The Power of the Purse, pp. 390-2.

[2]Wildavsky, The Politics of the Budgetary Process, pp. 15-6.

share" of the total budget for an agency. "Fair share" reflects what an agency expects to receive in comparison to others.[1]

Observation.--Table 2 reflects what apparently is accepted as the Marine Corps' fair share of the RDT&E,N appropriation. As can be seen, the Corps' percentage of the appropriation has remained relatively constant at about 2 per cent.

Deciding how much to ask for

Few agencies request all the money they feel they could profitably use. With appropriations always falling short of authorizations, how much of what they would like to get do agencies ask for from the Bureau of the Budget and Congress? The simplest approach would be to add up all the costs of worthwhile projects and submit the total. This is seldom done, partly because everyone knows there would not be enough resources to go around. Largely, however, the reason is strategic. If an agency continually submits requests far above what it finally gets, the BOB and the appropriations committee lose confidence in it and automatically cut large chunks before looking at the budget in detail. As a result, the ability to estimate "what will go" becomes a crucial aspect of budgeting.[2]

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[1] Ibid., pp. 16-7.

[2] Ibid., pp. 21-4.

TABLE 2

TOTAL NEW OBLIGATIONAL AUTHORITY FOR THE TOTAL DEPARTMENT OF THE NAVY COMPARED TO THE MARINE CORPS AND MARINE CORPS PERCENTAGE OF TOTAL NEW OBLIGATIONAL AUTHORITY
FISCAL YEARS 1961-1969, INCLUSIVE
(Money Amounts Rounded to Nearest Hundred Thousand)

Fiscal Year	Department of the Navy New Obligational Authority	Marine Corps New Obligational Authority	Marine Corps Percentage of Total New Obligational Authority
1961	1,446,725	18,256	1.29
1962	1,318,905	28,592	2.17
1963	1,503,887	22,650	1.51
1964	1,565,230	27,673	1.77
1965	1,423,366	25,382	1.78
1966	1,582,457	33,235	2.10
1967	1,947,422	34,947	1.79
1968	1,886,250	37,103	1.97
1969	2,161,074	37,364	1.73

Source: Office of Naval Research, Washington, D.C., Official Accounting Records.

Note: New obligational authority (NOA) is defined as that authority becoming newly available for a given year, provided by current or prior actions of the Congress, enabling Federal agencies to obligate the Government to pay out money. At the present, NOA may consist of appropriations, contract authority, or authority to spend debt receipts. From: Report of the President's Commission on Budget Concepts.

Observation.--The Marine Corps apparently did not estimate accurately the amount that "would go" in their fiscal year 1970 program. Their submission to the Secretary of the Navy was approximately fifty-three million dollars while OSD/BOB approved only about thirty-eight million.[1] In view of the long-run implications of submitting grossly high requests, the Corps should increase its attempts to determine beforehand what amount is likely to be acceptable to higher authorities.

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[1]Vroman interview of February 13, 1969.

CHAPTER III

RESPONSIBILITIES AND ORGANIZATION

Responsibilities for Research and Development

Interpretation of statutory responsibilities

How the Marine Corps interprets its statutory responsibilities, especially for R&D, has an impact on its budgetary practices.

Outlined below, in descending order, are the Marine Corps' responsibilities for R&D as prescribed by Congress, the Department of Defense, the Department of the Navy and the Commandant of the Marine Corps.

Congress.--Section 206(C) of the National Security Act of 1947 as amended in sections 5013 (A), (B) and (C) of Title 10 United States Code assigns the Marine Corps the following roles and missions relative to R&D:

> The Marine Corps shall develop, in coordination with the Army and the Air Force, those phases of amphibious operations that pertain to the tactics, techniques, and equipment used by landing forces.

Department of Defense.--The DOD defines the principal R&D responsibilities of the Marine Corps as follows:

> To develop, in coordination with other Services, doctrines, tactics, techniques, and equipment employed by landing forces in amphibious operations. The Marine Corps shall have primary interest in the development of those landing force doctrines, tac-

> tics, techniques, and equipment which are of common interest to the Army and the Marine Corps.-

Department of the Navy.--The principal R&D functions of the Marine Corps, as promulgated by Department of the Navy General Order Number 5, dated April 29, 1966, are as follows:

> To plan for and determine the support needs of the Marine Corps for equipment, weapons, or weapons systems, materials, supplies, facilities, maintenance, and supporting services. This responsibility includes the determination of the Marine Corps characteristics of equipment and materials to be procured or developed....

Commandant of the Marine Corps.--Marine Corps Order 3900.3A of July 25, 1962 defines the Corps' responsibilities for R&D in part as:

> to develop, in coordination with the other Services, those phases of amphibious operations that pertain to the tactics, techniques and equipment used by landing forces;
>
> the Marine Corps shall have primary interest in the development of those landing force doctrines, tactics, techniques, and equipment which are of common interest to the Army and the Marine Corps; and
>
> the Commandant of the Marine Corps is responsible for forecasting, planning, and determining the requirements of the Marine Corps for equipment, material, personnel, and supporting services. He is also responsible to the Secretary of the Navy for the planning, initiation, conduct, and business administration of the Marine Corps research, development, test, and evaluation program. It is essential that the latter be planned and coordinated so as to ensure maximum combat readiness and effectiveness of Marine Corps forces

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[1]U.S. Department of Defense, Functions of the Department of Defense and its Major Components, DOD Directive 5100.1, December 31, 1958, p. 7.

through improvements of tactics, techniques, organization, and material....

Observation.--It is abundantly clear that the Marine Corps is responsible for maintaining an R&D program to develop doctrines, tactics, techniques and equipment for use in amphibious operations. However, it does not appear that the Marine Corps has adequately defined what constitutes a proper expenditure of Marine Corps RDT&E funds in this area. A review of the Corps' fiscal year 1969 budget discloses that only 50 per cent of its funds were programmed for the development of items either directly related to the Corps' statutory responsibility or for which the Marine Corps was designated the executive agency. The remaining half of the Corps' R&D funds were programmed for:

(a) projects to improve, modify, test, and/or evaluate existing equipment or developments by other Services to determine suitability for adoption as a Marine Corps item, system, or procedure;

(b) projects that are directed by DOD for Marine Corps participation in joint developments;

(c) projects that the primary responsible Services are not developing for which the Marine Corps has requirements; and

(d) projects under development by primary responsible Services.

In view of the Corps' relatively poor performance in executing its budget, as evidenced by the obligation rate, it would seem appropriate to increase the percentage of funds devoted to meeting its statutory responsibilities.

Marine Corps Organization for R&D

Three primary elements

The Corps' organization for carrying out its research and development responsibilities affects its budgetary policies and procedures. Three elements within the Corps are primarily involved in prosecuting its R&D program: the Deputy Chief of Staff (RD&S), the Deputy Chief of Staff (Air) and the Marine Corps Development Center.

Deputy Chief of Staff (RD&S).--The DC/S (RD&S) assists the Chief of Staff in planning, directing and coordinating staff activities in the areas of Marine Corps research, development, test, evaluation and studies. The primary functions performed by this office are:

(a) formulate Marine Corps RDT&E policy;

(b) coordinate the total Marine Corps RDT&E effort;

(c) supervise the preparation of the Marine Corps RDT&E plans, programs, and budgets and manage the Marine Corps R&D appropriation;

(d) provide a single point of contact on all Marine Corps RDT&E matters;

(e) establish controls and procedures to insure the efficient management of Marine Corps RDT&E;

(f) approve internal USMC Project Directives; promulgate GORs and SORs; and issue implementing directives for study programs and projects;

(g) provide scientific and analysis assistance to the Headquarters Staff;

(h) sponsor the tables of organization and tables of equipment for the Development Center;

(i) direct, coordinate, and supervise the Marine Corps Study Program; and

(j) serve as the single point of contact for the Headquarters on all Study Program matters.[1]

Figure 3 is an organization chart which depicts the present structure of the Office of the DC/S (RD&S). Personnel records indicate that thirty-seven Marines and six civilians currently staff this organization (exclusive of the Marine Corps Operations and Analysis Group).

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[1]U.S. Marine Corps, Headquarters Marine Corps Manual, HQO P5000.3A, September 9, 1968, pp. 1/38-9.

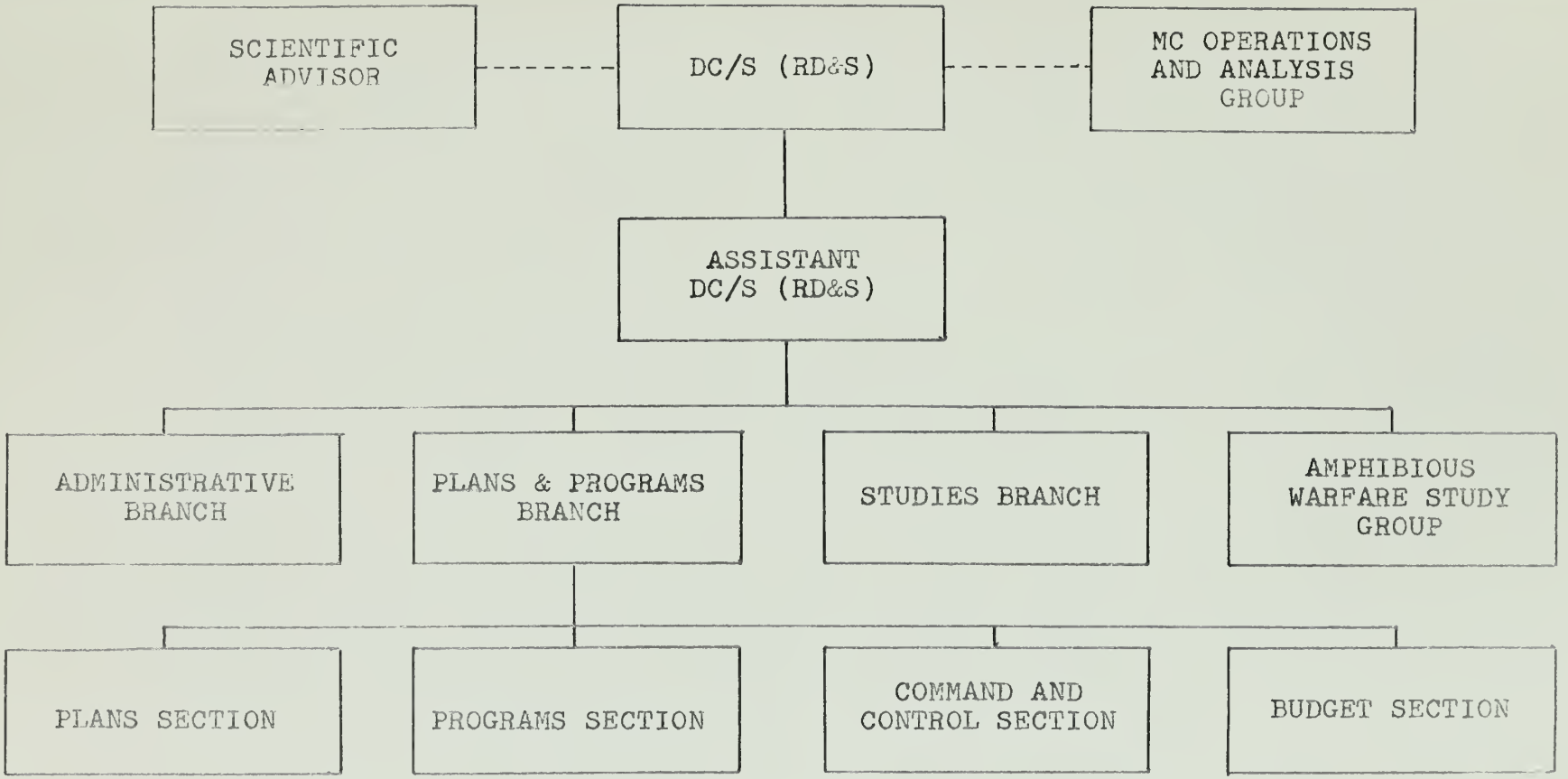

Figure 3

Organization Structure of Office of Deputy Chief of Staff (RD&S),

Headquarters, United States Marine Corps

Source: Office of DC/S (RD&S)

The DC/S (R&D) relies primarily upon the following Headquarters Staff Offices in discharging his responsibilities for non-aviation research and development.

Assistant Chief of Staff, G-1.--The primary R&D mission of this office is to supervise manpower and personnel research programs and assign research projects.[1]

Assistant Chief of Staff, G-2.--The principle R&D functions of the G-2 are to formulate research and development requirements in the fields of combat intelligence, signal intelligence, communications security and electronic warfare.[2]

Assistant Chief of Staff, G-3.--The primary R&D function performed by the G-3 relates to the formulation of operational requirements for the Operating Forces (less aviation). This includes equipment having primarily a tactical application; the formulation of policy; the initiation of appropriate development work; the review of tactical doctrine and procedures (less aviation); and the coordination of these or related items as developed by the other Services.[3]

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[1] U.S. Marine Corps, A Study of the Marine Corps R&D Program, Vol. V (Washington, D.C.: Management Technology, Inc., 1967), p. 7.

[2] Ibid., p. 8.

[3] Ibid.

Assistant Chief of Staff, G-4.--The G-4 has the primary mission of being responsible for Marine Corps plans and policies and the determination of requirements, program objectives and programs relating to material readiness. To determine the materiel requirements and materiel program objectives of the Corps, this office must plan and establish requirements for R&D efforts in the area of logistics.

The principal R&D functions performed by the G-4 include the following:

(a) prepare statements as to needs for new equipment,

(b) define needed R&D projects, and

(c) initiate and monitor service tests and the overall evaluation of new equipment.[1]

Observation.--The preceding discussion reveals that the DC/S (RD&S) is concerned primarily with directing, coordinating and supervising other Headquarters staff activities in R&D efforts. Personnel within these activities are, in effect, under the authority of two superiors--their own immediate senior and the DC/S (RD&S). Normally, subordinates under the authority of more than one supervisor will have divided loyalty. This situation leads to confusion. For example, confusion exists as to the re-

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[1] Ibid., p. 10.

sponsibilities of various R&D personnel relat[illegible] obligation effort. R&D action officers from G-1, G-2, G-3 and G-4 sometimes mistakenly conclude that once they submit a commitment document for their program, the follow-up action required to achieve an obligation is not their responsibility. One possible solution would be to clarify duties in writing. Another solution would be to centralize all R&D personnel within the Office of the DC/S (RD&S). While the latter proposal would probably meet with resistance from some quarters, it is in keeping with the principle of unity of effort which holds that only one leader is required to unite the efforts of subordinates.[1]

Deputy Chief of Staff (Air).--The Marine Corps' R&D budgetary requirements relative to aviation are the responsibility of DC/S (Air). The DC/S (Air) assists the Chief of Staff in planning, directing, and coordinating staff activities on all matters relating to equipping, manning, training, organizing, and supporting Marine Corps aviation units and installations. As Assistant Chief of Naval Operations (Marine Aviation) (OP-05M), he assists the Deputy Chief of Naval Operations (Air) to insure that Marine aviation plans and programs are adequate in all respects. As Director, Marine Aviation Division in the

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[1]Henry H. Albers, Organized Executive Action (New York: John Wiley & Sons, Inc., 1963), p. 66.

Office of the DCNO (Air) (OP-52), he is responsible for formulating and coordinating plans and initiating action to fulfill the requirements of Marine aviation.[1]

The existing arrangement through which the Navy budgets for Marine aviation is generally accepted as being appropriate and not requiring revision and/or modification to any significant degree.[2]

Marine Corps Development Center.--The major field organization responsible for assisting Headquarters, Marine Corps in performing R&D is the Marine Corps Development Center located at Quantico, Virginia. Figure 4 presents the current organization of the Center. The director of the Center has been assigned the responsibility of coordinating, in cooperation with the other Services, the development of those phases of amphibious operations pertaining to doctrines, tactics, techniques and equipment used by the Landing Forces.[3]

The Center is manned with about 350 Marines to accomplish its many and varied tasks. Some feel that this represents inadequate staffing, especially in view

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[1] United States Government Organization Manual, 1968-69 (Washington, D.C.: Government Printing Office, 1968), p. 186.

[2] A Study of the Marine Corps R&D Program, Vol. V., p. 26.

[3] Ibid., Vol. II., p. 26.

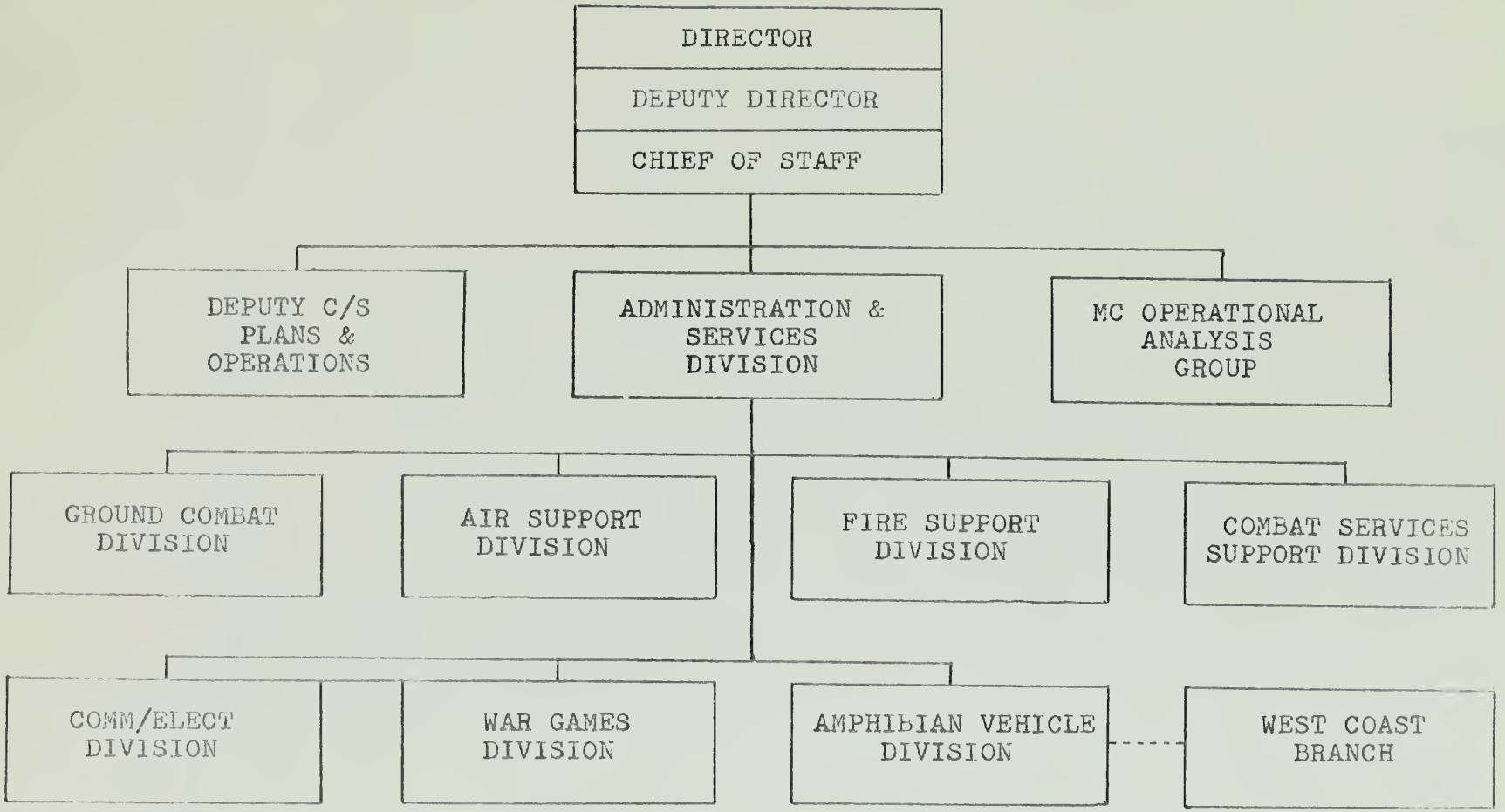

Figure 4

Organization Structure of Marine Corps Development Center

Source: Armed Forces Management

of the added workload caused by Vietnam. As an extension of the efforts of the Development Center, Marine Corps liaison officers are stationed at more than twenty-five other locations where research and development functions are performed by other Services. These representatives monitor the activities in progress and inform other Services of Marine Corps R&D efforts.[1]

Once a doctrine, tactic, technique, weapon system, or a new piece of equipment has been processed by the Development Center, the item under consideration is tested by the Fleet Marine Forces. Final and official findings are forwarded to Headquarters, Marine Corps for disposition and subsequent use in the Fleet Marine Forces.[2]

Observation.--The Development Center is one of three organizations under the overall command of the Commanding General, Marine Corps Development and Education Command. Since Headquarters, Marine Corps assigns the Center's R&D tasks and provides the funds to support them, it would appear that a more logical, responsive and direct relationship would be to have the Development Center designated a field activity under the direction and control of

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[1]Scot MacDonald, "Vietnam Paces Marine Development," Armed Forces Management, November, 1968, p. 55-7.

[2]Ibid., p. 55.

the DC/S (RD&S). At present the Center is, in fact, merely a tenant activity located at the Development and Education Command; it would seem appropriate to recognize it as such.

Relations with other Services

At present there is no formal system by which the Army or the Air Force can be required to develop items within their area of statutory responsibility for the Marine Corps. Working level conferences and correspondence are the primary means used by the Corps to enlist the efforts of these Services in the Corps' behalf. The Corps enjoys a more beneficial relationship with the Navy. In this case, Department of the Navy General Order Number 5 requires the Navy to cooperate with the Corps in satisfying its R&D requirements.

Observation.--Perhaps the lack of formally established procedures for levying requirements upon the other Services explains why the Corps budgets for and attempts to develop items which should be developed by its sister Services. As the preceding discussion indicates, the Corps' wherewithal in regard to both personnel and facilities is extremely limited. In view of this, it would seem appropriate to explore the possibility of establishing formal procedures by which the Corps could require the other Services to develop, for the Corps, items which have been designated their statutory responsibility.

Lack of control over funds committed to other Services

The Corps lacks sufficient control over the funds it commits to support Marine Corps tasks being undertaken by other Services. This is indicated by the fact that only 48 per cent of the funds committed to such agencies in fiscal year 1968 were obligated.[1] Since most of the Corps' R&D funds are committed to the other Services, poor performance on their part has a major impact on the Corps' obligation rate. Currently, no formal procedures exist by which the Marine Corps can obtain feedback from the other Services and take corrective action if necessary. Reliance is placed upon working level liaison and occasional correspondence from the DC/S (RD&S) to the Service involved. While these methods are undoubtedly helpful, it is believed that formal procedures that would define and fix the responsibilities of the developing Service would be more beneficial to the Corps.

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[1]Captain Paul E. Ring, Headquarters, Marine Corps, Arlington, Va., personal interview, October 11, 1968.

CHAPTER IV

BUDGET EXECUTION

Concept and Definition of Budget Execution

General

In its broadest sense, budget execution is concerned with the efforts made by an agency to convert the obligational authority granted it by Congress into cash expenditures. Burkhead prefers to view budget execution in this framework. He feels that it is concerned with management practices, cost control procedures and procurement practices.[1] It is in this sense that the execution phase of the budget process, as practiced by the Marine Corps for research and development, will be discussed in this chapter.

In the Marine Corps, it is during the execution phase of the budget process that the deficiencies of R&D management control policies and procedures become apparent. Throughout the Department of the Navy, the obligation rate is one of the primary tools used to measure the efficiency and effectiveness of R&D management practices. The obliga-

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[1]Jesse Burkhead, Government Budgeting (New York: John Wiley & Sons, Inc., 1963), p. 344.

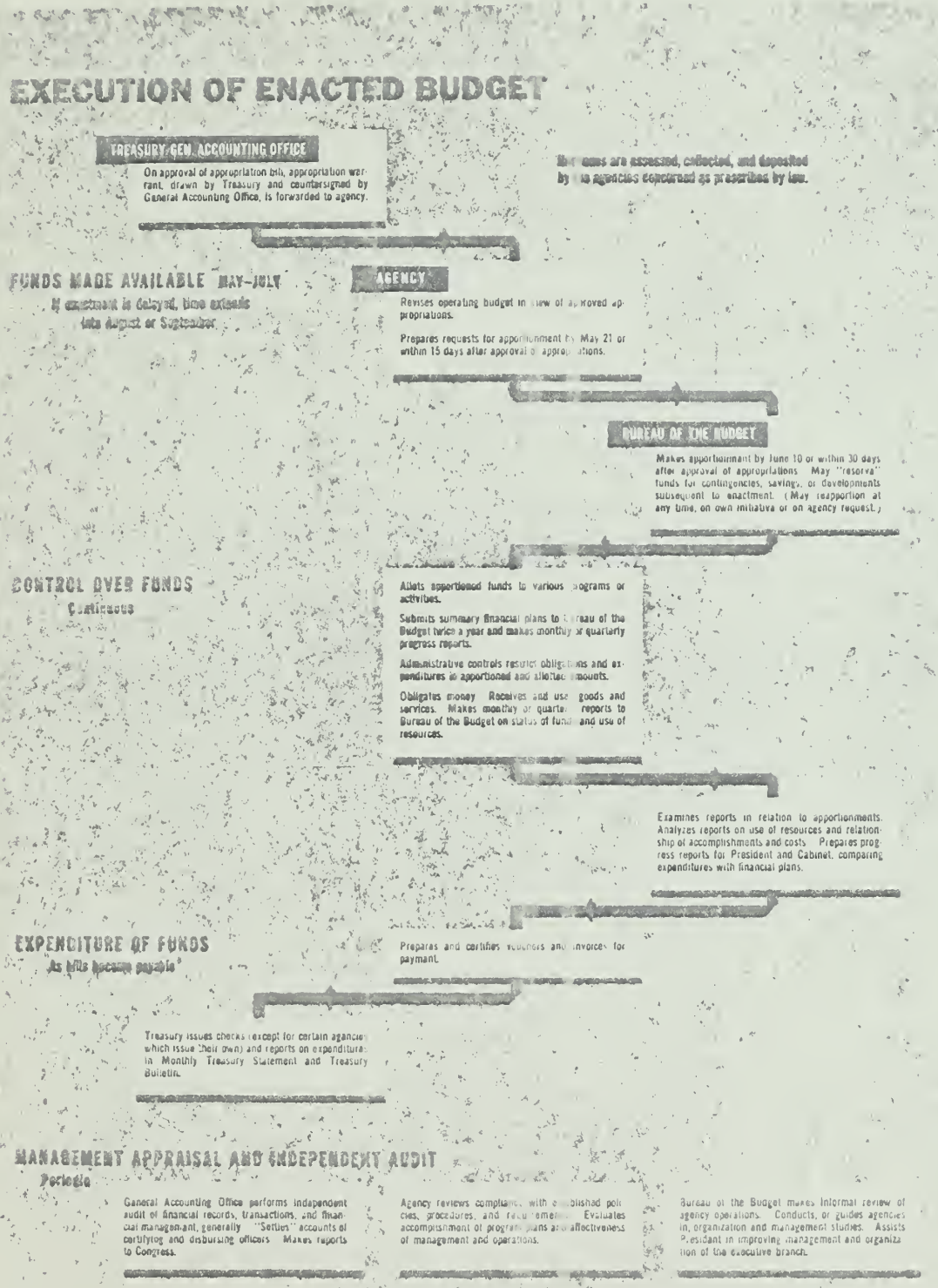

Figure 5

EXECUTION OF ENACTED BUDGET

Source: RDT&E Management Guide

tion rate serves as a common denominator by allowing all of the systems commands, bureaus and offices sharing the RDT&E,N appropriation to be compared with one another as to their relative performance in executing their share of the appropriation. As Table 1 page 7 indicates, the Marine Corps' performance relative to the remainder of the Department of the Navy is unfavorable.[1]

Apportionment

Initial step in the execution of the budget

It is fallacious to assume that passage of the Appropriations Act, after a year and a half of justification, review, markup and reclama, marks the end of the battle for the funds required to carry out the Corps' R&D program. Because needs and technology change, the relative value and priority of various programs and projects change. Thus, during the apportionment process, the Corps is required to justify, once again, the funds approved for it by Congress. In short, the Appropriations Act does not guarantee that funds will be apportioned as approved by Congress. This is readily apparent when one compares the Corps' budget as approved by Congress to what is ultimately approved by DDR&E. For example, in

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[1]Above, p. 7.

fiscal year 1968 Congress approved $32,650,000 for the Corps, but DDR&E withheld $9,850,000 of this amount.[1]

Purpose of apportionment.--The goal of the Department of the Navy in the apportionment process is to fund the R&D efforts of the Navy and Marine Corps in annual increments. The policy is, that, insofar as practicable, the work be performed and the obligation incurred in the initial fiscal year. It is recognized that the achievement of this goal can only be approximated. Consequently, funds are available for obligation, not only in the initial fiscal year, but until they are exhausted. Thus, if necessary, work programmed in a given fiscal year may be continued in subsequent fiscal years, and the funds will be obligated therefor under the appropriation data of the given fiscal year.[2]

Apportionment process.--In April of each year, the Marine Corps submits its apportionment request to the Comptroller of the Navy who forwards it to DDR&E. This provides the Marine Corps with one last opportunity to realign funds. DDR&E reviews the Corps' request and

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[1]Captain Paul E. Ring, Headquarters, Marine Corps, Arlington, Va., personal interview, October 11, 1968.

[2]U.S. Department of the Navy, Appropriation Research, Development, Test and Evaluation, Navy, NAVCOMPT Instruction 7044.1A, June 1, 1965, p. 7.

makes recommendations concerning it to the Secretary of Defense who generally approves them. In addition to supporting the request in writing, the Corps is sometimes required to give technical presentations to DDR&E on specific major projects.

The DDR&E staff indicates by program element, and in some cases by line item, that part of the program which is approved for implementation and that part which is not approved with the rationale underlying their decision. The Corps must then wait for a letter from the ASD Comptroller which approves the funds for obligation against the specific program elements approved by DDR&E. Unless financial or cost effectiveness considerations are factors, the ASD Comptroller authorizes funds as recommended by DDR&E.[1]

Funding authority.--The Marine Corps receives authority to obligate and expend funds in the form of an allotment from the Comptroller of the Navy via the Office of Naval Research. The allotment specifies in writing the amount of obligational authority granted the Marine Corps. Severe penalties are provided for exceeding the allotment.[2]

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[1] U.S. Department of the Navy, RDT&E Management Guide (Washington, D.C.: Government Printing Office, 1967), p. 5/2.

[2] U.S. Department of Defense, Administrative Control of Appropriations within the Department of Defense, DOD Directive 7200.1, August 13, 1955, p. 2.

Approved and deferred schedules.--Subsequent to apportionment, funds may be deferred by ASD Comptroller because of action by DDR&E in connection with some specific program or because ASD Comptroller questions funding requests. These deferrals may be temporary, requiring merely the submission of additional information such as an up-to-date Technical Development Plan; or they may be of indefinite duration requiring a major program change.[1] Unless adequate justification is submitted, funds may be carried over into the next fiscal year and used for the original purposes when eventually approved, or the resources may be reprogrammed to meet other program requirements.

Inadequate Documentation

During 1967, the Marine Corps conducted a study to examine the management of its R&D program and to determine if the organization and procedures were properly designed to fulfill the Corps' R&D requirements for the next twenty years. One of the major findings of the study

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[1] A Technical Development Plan documents those actions, procedures, and resources which are required in order to achieve the capabilities described in an Advanced Development Requirement or Specific Operational Requirement. From Navy Programming Manual, p. D/12.

was that both requirement and technical documentation were inadequate.[1]

Requirement documents

Requirement documents are used to inform DDR&E and other members of the R&D community of Marine Corps needs. At present, the Corps makes little or no use of some of these documents. Specifically, there are eight Exploratory Development Requirements and no Advanced Development Objectives in effect.[2] The Marine Corps does utilize Specific Operational Requirement (SOR) documents to state a need for a particular capability. However, of the 118 SORs in effect, many are lacking in sufficient technical input.[3]

Technical documentation

Technical documentation is also deficient. It complements requirement documentation in that it describes the manner in which it is proposed that the need be solved. Technical documentation involves primarily the use of Form DD 1634, a Research and Development Planning Summary and/or

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[1] U.S. Marine Corps, A Study of the Marine Corps R&D Program, Vol. IV (Washington, D.C.: Management Technology, Inc., 1967), pp. 5-6.

[2] Mary L. Vroman, Headquarters, Marine Corps, Arlington, Va., personal interview, November 13, 1968.

[3] A Study of the Marine Corps R&D Program, p. 6.

Technical Development Plans (TDP). DOD requires that these documents be prepared to support proposed programs. The Marine Corps seldom prepares TDPs. This is evidenced by the fact that there are only nine in effect.[1] Usually, waivers are requested from the DOD. Generally, these are granted and the short form, DD 1634 is substituted.

While it is recognized that the use of the waiver approach may at this point reduce the amount of paper work, it is believed that it also results in much additional effort at a later date when the DOD requests needed information. A review of the fiscal year 1968 apportionment rationale from DDR&E supports this belief. Several programs were deferred because of inadequate documentation and several months elapsed before these funds were released. Over $800,000 was eliminated from one program.

Observation.--In view of the difficulties the Marine Corps encounters in getting its funds obligated, this appears to be an area in which it should concentrate its efforts. Possibly the Corps should not be criticized for the poor support provided by the other Services in contracting for Corps requirements, but should it be exempt from criticism when it neglects something within its capability?

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[1]Vroman, personal interview of November 13, 1968.

Reprogramming

The volatile nature of the R&D process and the fact that budget allocations are based on plans eighteen months old require that appropriation managers have the flexibility to reallocate funds among projects to achieve maximum effectiveness and efficiency.

While the interests of management effectiveness demand that funds be shifted from specific uses originally planned to others where they can be used more effectively, the maintenance of good faith with the Congress demands that funds be spent substantially for the purposes justified before Congressional committees.[1]

Constraints

The major limitation imposed on the Marine Corps relative to the reallocation of funds is the prohibition of any reprogramming action involving an increase of $2,000,000 or more in a budget project without the approval of the Comptroller of the Navy.[2]

Another constraint requires the prior written approval of both the Secretary of Defense or his Deputy and the Armed Services and Appropriations Committees of

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[1] U.S. Department of Defense, Reprogramming of Appropriated Funds, DOD Directive 7250.5.

[2] Appropriation Research, Development, Test and Evaluation, Navy, pp. 6-7.

Congress for any reprogramming action involving the application of funds, irrespective of amount, to programs in which the Congressional committees have expressed a special interest. The Corps has one program element in which Congress traditionally shows an interest.[1]

Observation.--Although the Corps is seldom required to seek formal approval to reprogram funds, it does reprogram a significant amount of its funds without exceeding the $2,000,000 threshhold in any one budget project. Table 3 illustrates this. Whether the percentage of funds reprogrammed is indicative of changed military priorities, advances in the state of the art which dictate that funds be used for purposes other than for which they were originally programmed or "soft" programs is worthy of thought.

Emergency Funds

One of the most characteristic qualities of research and development is uncertainty. The long lead-times of the appropriation process are not suited to maximum exploitation of scientific breakthroughs or to rapid change in response to evolving requirements. To provide the flexibility needed to meet such situations, Congress appropriates a fund from which the Secretary of Defense can meet

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[1]Congress usually shows interest in the Corps' "Studies and Analyses" program element. Ring, personal interview of March 3, 1969.

TOTAL NAVAL AMOUNT ... FOR WHICH
OBLIGATIONAL AUTHORITY REPROGRAMMED
FISCAL YEARS 1961-1969, INCLUSIVE
(Money Amounts Rounded to Nearest Hundred Thousand)

Fiscal Year	New Obligational Authority	Dollar Amount Reprogrammed[a]	Percentage Reprogrammed
1962	28,592	7,251	25
1963	22,650	7,839	35
1964	27,673	10,320	37
1965	25,382	7,250	29
1966	33,235	9,692	29
1967	34,947	5,413	15
1968	37,103	5,367	14
1969	37,364	6,678	18

Source: Headquarters, Marine Corps, Arlington, Va., Official Accounting Records.

[a] Totals include below threshold transfers of funds at the task area level for Exploratory Development and at the project level for Advanced Development, Engineering Development, Operational Systems Development and Management and Support.

Note: Administering agencies are permitted to reprogram up to $2,000,000 between program elements without prior approval. Any increase of $2,000,000 or more in a program element for the current and immediately prior year requires the prior approval of the Comptroller of the Navy. From: Appropriated by Research, Development, Test and Evaluation, Navy, pp. 5-7.

needs not foreseen when program plans were developed and budget estimates were formulated.

In order to qualify for emergency funds, there should be no doubt but that Congress would support the program if time permitted its submission in the normal manner. It should also be of such a nature that to delay for normal appropriation processes would be seriously detrimental.[1]

Observation.--Records of the DC/S (RD&S) indicate that the Corps has requested emergency funds on several occasions. An examination of the Corps' justification submitted to support its requests discloses that the funds were requested in keeping with the spirit of the instruction governing the allocation of such funds.

Inadequate In-House Contracting Support

Although the Marine Corps can properly point to the poor contracting performance of the other Services on its behalf as a partial explanation for its deficient obligation rate, facts reveal that its in-house contracting efforts are even less satisfactory.

Approximately 16 per cent ($5,803,000) of the fiscal year 1968 Marine Corps RDT&E funds was committed to the Quartermaster General of the Marine Corps (QMGMC) for

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[1]U.S. Department of the Navy, Requests for Allocation of Funds from the Secretary of Defense Emergency Fund, SECNAV Instruction 7000.7, June 13, 1960. pp. 1-1.

in-house contracting. Of this amount, only 22 per cent was obligated within the fiscal year. This compares to a 48 per cent obligation rate for funds committed to other DOD agencies.[1]

An analysis of the thirty-nine fiscal year 1968 commitment documents submitted to the QMGMC indicates that the average lapse of time from date of approval to date of contract/obligation is eighty-one days. It is generally accepted that the major factor contributing to this situation is an excessive workload in the Contracting Branch of the QMGMC.

Commitments to other DOD agencies must be forwarded via the QMGMC. The average lapse of time from date of approval to date of forwarding document for the seventy-eight fiscal year 1968 commitment documents was twenty-three days.

A contributing factor to the relatively poor service provided the DC/S (RD&E) by the QMGMC stems from the fact that annual appropriations which are no longer available for commitment or obligation after the end of the current year are given contracting priority over continuing appropriations such as RDT&E,N.

Observation.--It would appear that an inordinate administrative delay is involved in forwarding funds to

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[1]Ring, personal interview of October 11, 1968.

external agencies. This is especially significant in view of the fact that the majority of Marine Corps R&D funds are in this category. Thus, neither the contracting done internally by the QMGMC nor the forwarding of funds to other agencies is conducive to a satisfactory obligation rate.

"Soft" Programs are Included in the Budget

Projects which are programmed and budgeted before operational requirements are definitized, desired technical parameters are established, and supporting documentation is prepared contribute to the Corps' unsatisfactory budget execution. A prime example of a soft program was the attempt to develop a high speed, amphibious, landing force support vehicle. Records of the DC/S (RD&S) show that funds were budgeted and approved for this program for several years even though there was no agreement in the Marine Corps as to the requirement for such a vehicle or between the Marine Corps and the developing agency as to the optimum concept of desired vehicle. Since several million dollars were involved in this program, the impact on the Corps' obligation rate was significant.

Operations and Maintenance Costs are Budgeted Under the Guise of Research and Development

Like several of the other topics discussed in this chapter, this situation becomes evident through the

obligation rate in the execution phase of the budget process. However, its cause occurs earlier in the budget cycle.

A substantial percentage of Marine Corps RDT&E funds are requested and approved for Operational Systems Development programs. In fiscal year 1968, 31 per cent of the total funds in the budget were for projects in this category.[1] Ostensibly, funds in this category are used primarily to incorporate "state-of-the-art" improvements in operational equipment. However, a review of the justification submitted to support projects in this category leaves one with the impression that operations and maintenance funds should more properly be used. Prudence dictates that funds be retained in these programs throughout the fiscal year to meet contingencies, and this often results in large unobligated balances at the end of the fiscal year.

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[1] Ibid.

CHAPTER V

SUMMARY, RECONCILIATIONS AND RECOMMENDATIONS

SUMMARY

Concepts and characteristics of R&D budgeting

The preceding chapters indicated that budgeting for research and development is somewhat different from general budgeting because of the uncertainty of R&D and the greater flexibility needed. It was illustrated that the Marine Corps achieves the required flexibility through reprogramming and emergency funds.

Congressional attitudes

It was pointed out that Congress expounds the doctrine of fiscal responsibility. That is, they promote the virtues of economy, thrift and responsibility in financial affairs. They urge frugality in public spending.[1] It was also explained that the attitude of Congress toward the efficient use of appropriated funds should be considered by the Corps in carrying out its budgetary responsibilities.

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[1]Frederick C. Mosher and Orville F. Poland, The Costs of American Government (New York: Dodd, Mead & Company, 1964), p. 2.

Obligation rate

It was learned that the obligation rate was a primary means used by Congress, DOD and the Department of the Navy to measure the effectiveness and efficiency of budgeting procedures. It was also learned that the Marine Corps' performance in this respect is significantly poorer than the remainder of the Department of the Navy. Several contributing causes were discussed. Among them were the following.

Inadequate documentation.--The results of a recent study of the Marine Corps R&D program were cited which concluded that both requirement and technical documentation are inadequate.[1] It was explained that since the Marine Corps depends almost exclusively upon the R&D facilities of the other Services to meet its needs, its documentation should be well written, widely distributed and thoroughly understood by these Services.

Inadequate in-house contracting support.--The inordinate administrative delay involved in forwarding funds to external agencies was discussed as was the lengthy contractual leadtime for in-house contracts. It was pointed out that contractual documents bearing

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[1]U.S. Marine Corps, A Study of the Marine Corps R&D Program, Vol. V (Washington, D.C.: Management Technology, Inc., 1967), pp. 5-6.

annual appropriation data were given preference over those bearing RDT&E,N data.

"Soft" programs.--The dangers of programming and budgeting for projects before operational requirements are definitized, desired technical parameters are established and supporting documentation is prepared were discussed.

Operational Systems Development category being improperly used.--The preceding discussion indicated that funds in this category of development comprise a significant percentage of the Corps' R&D budget. It was further explained that funds for some tasks should more properly be budgeted in the Operations and Maintenance appropriation.

Program/budget process

The functions of the participants in the RDT&E budgetary process were enumerated. The phases of the budget cycle were illustrated.

Concepts of budgeting

Some pertinent concepts of budgeting were discussed, and the need to be familiar with them was emphasized.

Responsibilities

The Corps' statutory responsibility for developing doctrine, tactics, techniques and equipment for use in amphibious operations was discussed in some detail. It

was noted that the Corps exceeds its statutory responsibilities by spending about half its R&D funds for items other than those it is required by statute to develop.

Organization for R&D

The Corps organization for R&D was illustrated. We learned that the Marine Corps budgets for only a small percentage of the R&D from which it benefits. The Navy funds all Marine Corps aviation requirements and the Corps frequently adopts equipment developed by the Army.

The Marine Corps Development Center's functions and relationships were explained. It was concluded that this organization should more properly be placed under the direction and control of the DC/S (RD&S).

The R&D functions of certain headquarters staffs were briefly enumerated. It was determined that in this case too, the R&D functions of these staffs should be centralized under the DC/S (RD&S).

Relationships with other Services

The lack of formalized means of tasking other Services to perform R&D tasks for which they have statutory responsibility was discussed as was the lack of control over funds committed to these agencies.

Reconciliations

While the tenor of this study is critical, the author recognizes that significant improvements have been and are being made that will improve the R&D budgetary

practices of the Marine Corps. Following are a few of the many that came to the author's attention during the course of his study.

Reprogramming

As Table 3 page 71 indicates, the percentage of funds reprogrammed annually is decreasing. Perhaps this is indicative of sounder programming procedures which result in less need to reallocate funds.

Realistic assessment of Operational Systems

It is understood that the Marine Corps recently concurred in shifting the funding for a program element from the RDT&E,N appropriation to the O&M,MC appropriation. This reflects recognition of the fact that operations and maintenance costs were being improperly included in the R&D budget.

Directives

The basic Marine Corps Order relative to research and development has recently been rewritten.

"Priorities approach" terminated

Hitch and McKean describe the "priorities approach" as the ranking of desirable projects according to the urgency with which they are needed.[1] They also provide several reasons why it does not solve the allocation pro-

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[1]Charles J. Hitch and Roland N. McKean, The Economics of Defense in the Nuclear Age (New York: Atheneum, 1965), p. 122.

blem. The Corps no longer uses this method to select which projects will be funded in a particular fiscal year.

Chief of Naval Development support of Exploratory Development

The DC/S (RD&S) has requested increased support from the CND for the Corps' Exploratory Development program.[1] This indicates that the Corps has realized they require the technical competence of Navy laboratories and have a right to expect their assistance.

Requirement and technical documentation

The DC/S (RD&S) has initiated action to prepare adequate documentation to support its R&D programs. This includes adopting the Navy format for requirement documents.

Recommendations

Following are specific suggestions which, if implemented, would, in the opinion of the author, significantly improve the Marine Corps' effectiveness and efficiency in managing its RDT&E budget.

Participants in the budgetary process

Steps should be taken to ensure that appropriate Marine Corps personnel are thoroughly familiar with the

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[1] Deputy Chief of Staff (RD&S), letter to the Chief of Naval Development, January 4, 1969.

[2] Ibid.

roles played by the participants in the RDT&E budgetary process. As the preceding discussion indicated, the Corps' R&D budget is subjected to numerous reviews by successively higher echelons. It is important that Marine Corps personnel understand the functions of the reviewing participants if they are to respond intelligently.

Program/budget cycle

One of the most talked about areas of the Marine Corps R&D Program is the programming/budgeting cycle. It is in this area that "crises" arise. Generally, these are caused by having to respond to programming/budgeting requirements which are imposed by higher authorities. A great deal of time is spent by those involved in this area.[1]

We have seen that the Marine Corps is tightly controlled in its budgetary practices by the requirement to abide by the PPBS. Basically, this system is designed to coordinate plans, programs, and the budget. It is a system imposed by DOD, and there is little likelihood that it will be changed to suit the individual needs of the Marine Corps. It is therefore imperative that the Marine Corps learn to live within it.

We have also seen that the sequence of events in the program/budget cycle is predictable. In view of this,

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[1] A Study of the Marine Corps R&D Program, Vol. IV., pp. 34-5.

it would seem appropriate for the Corps to anticipate DOD requirements rather than react to them. It can do this by becoming familiar with the cycle and planning in advance to meet the requirements of the system.

Concepts of budgeting

The Marine Corps should be aware of existing budgetary concepts and act accordingly. For example, it should be realized that a budget is almost never actively reviewed as a whole every year in the sense of reconsidering the value of all existing programs as compared to all possible alternatives.[1] Instead, this year's budget is based on last year's budget with special attention given to the increases requested. Thus, the Corps would do well to make a concerted effort to fully justify all increases to the existing base. The Corps should also realize that deciding how much to request is not a simple matter of adding up all the costs of all worthwhile projects and submitting this total. Resources simply don't permit this. This requires that the Corps develop its ability to estimate what amount is likely to be approved by higher authorities.

Increase use and improve quality of requirement and technical documentation

As discussed earlier, the DOD delays obligational

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[1]Aaron Wildavsky, The Politics of the Budgetary Process (Boston: Little, Brown and Company, 1964), p. 15.

authority for lack of documentation of programs, and contracting agencies incur delays caused by lack of adequate documentation. This fact should be recognized and corrective measures should be taken.

The use of Exploratory Development Requirements to guide contracting agencies toward Marine Corps desired goals should be increased. The Corps should begin using Advanced Development Objectives to state requirements. The quality of Specific Operational Requirements should be improved. This is essential inasmuch as SORs provide definitive guidance to the contracting agencies as to the functional performance desired and the limiting physical parameters of weight, size, speed, environmental requirements and other similar data.[1] The use of Technical Development Plans should also be increased. The TDP is a complete and detailed description of the effort necessary to accomplish the development, test and evaluation of material and includes a recommended funding schedule.[2] Following the approval of the TDP, it becomes the primary management control and reporting document for the life of the development. It is probably the most important docu-

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[1]U.S. Department of the Navy, RDT&E Management Guide (Washington, D.C.: Government Printing Office, 1967), p. 2/13.

[2]Ibid., p. 6/1.

ment that could be provided to the DOD as a justification for funds or to a developing agency for guidance, yet there are only nine in existence.

Implement program/budget reforms

Probably the single most important step that could be taken to improve the Marine Corps' obligation rate would be to budget funds only for those programs which have a reasonable probability of being obligated within the same fiscal year they are allocated. While this suggestion may seem self evident, it apparently has not been effectively employed to date. Admittedly, this proposal is fraught with difficulties. For example, the volatile nature of the R&D process makes it extremely difficult for external agencies who do the majority of the Corps' R&D work to predict with any degree of certainty when a particular project will reach the contract/obligation stage. In view of this, what might be done is to compute the average time required in the past by each major contracting agency to obligate funds after receipt of funding authority and supporting technical documentation. When the average time of twenty-three days required by internal Marine Corps offices to forward funds to external agencies is added to this, a date could be established for each contracting agency after which no funds should be committed. For example, assume that the Naval Ship Systems Command has indicated that an average of approximately seven months

is required to accomplish contract negotiations after receipt of a Marine Corps Procurement Request. Add to this the nearly one month required for administrative processing within the Corps, and the latest realistic date that funds should be committed to this agency, if they are expected to be obligated within the fiscal year, is early November. Once terminal commitment dates are established for each agency, they should be used in the absence of more reliable information from the contracting agency.

If it becomes apparent that funds can't be obligated within the fiscal year, consideration should be given to relinquishing them to the Department of the Navy. This would make them available for more urgent uses and at the same time improve the Marine Corps' obligation position by reducing its unobligated balance.

In categories other than Exploratory Development, funds should be budgeted only for programs for which stated operational requirements exist, desired technical parameters are established, and supporting documentation has been prepared. Programs should be subjected to a thorough review during the budget formulation process. Any program not meeting the above criteria should be held in abeyance until the criteria are satisfied. This would reduce the deferment of funds by DOD for insufficient justification and eliminate the need for contracting agencies to waste time awaiting guidance.

Improve in-house contracting support

If the DC/S (RD&S) considers the quality of support provided by the Quartermaster General as beyond his control, an alternative solution would be to rely on other DOD agencies to a greater extent. In view of the fact that these external agencies obligated 48 per cent of the funds provided them while the QMGMC obligated only 22 per cent of the funds committed to his office, this would appear to be an alternative worthy of consideration.

Although the RDT&E,N appropriation is a continuing appropriation, in many respects it is subjected to the same restrictions as an annual appropriation. For example, it is subject to recoupment objectives and deferral action. At present, plans are being formulated that would impose an eighteen month availability limitation on it.

Top level R&D management officials should explain these restrictions to contracting officials and request that R&D contracts be given the same priority as those supported by other appropriations.

Purify Operational Systems Development

The Corps would do well to examine its criteria vis a vis the criteria DOD has established for Operational Systems Development projects. It is quite likely that the funds currently budgeted in this category should more properly be included in other appropriations. Since funds in this category constitute nearly a third of the Marine

Corps RDT&E budget, any substantial shift of funds to other appropriations should improve the Corps' obligation position.

Recognize limitations and strengths

The Marine Corps should conduct an R&D program that is consistent with its capabilities and mission. It should concentrate more of its efforts in the amphibious area--where it has primary statutory responsibility and knowledge.

Centralize.--Consideration should be given to centralizing the R&D efforts of the Marine Corps Development Center; AC/S, G-1; AC/S, G-2; AC/S, G-3 and AC/S, G-4 under the DC/S (RD&S). It is believed that the beneficial effects of the unity of effort achieved by doing so would materially improve programming and budgeting procedures.

Develop procedures for tasking other Services.--Formalized procedures by which requirements could be levied on the other Services should be developed. These should provide for a reporting system that would give the Corps more control over the funds committed to these Services. The Unified Action Armed Forces (JCS Pub 2) provides for this when it states that Military Departments shall: "assist each other in the accomplishment of their respective functions, including the provision of personnel.

intelligence, training facilities, equipment, supplies and services."[1]

Concentrate on statutory responsibilities.--The Marine Corps should devote a larger percentage of its budget to amphibious programs. As Clausewitz put it, force should be concentrated where the chance for success is best. The Corps' best chance for success lies in realistically appraising its capabilities and limitations and acting accordingly. The Marine Corps should capitalize on its strength--its knowledge of amphibious doctrine. De Chant in discussing leadership in amphibious warfare writes,

> Despite its outstanding record as a combat force in the past war, the Marine Corps' far greater contribution to victory was doctrinal: that is the fact that the basic amphibious doctrines which carried allied troops over every beachhead in World War II had been largely shaped--often in the face of uninterested or doubting orthodoxy--by the U.S. Marines.[2]

The Corps' ability to conduct R&D on a large scale is limited by its personnel and facilities. While some contend that large numbers of specially trained personnel, laboratories, test facilities, test ranges and expanded air facilities are requisite to an effective Marine Corps R&D

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[1] U.S. Joint Chiefs of Staff, Unified Action Armed Forces, JCS Pub 2, November 1959, p. 16.

[2] John A. De Chant, The Modern United States Marine Corps (Princeton: D. Van Nostrand Company, Inc., 1966), p. 45.

program, others claim the opposite.[1] Roberts holds the latter view. He writes,

> Communications problems become great as the size of an R&D organization increases. In the small organization, the director knows about and exercises personal influence on the several projects. However, with organization growth comes greater administrative problems. The manager spends more time on budget and personnel matters, and project control becomes more impersonal, responsive to periodic reports and artificial measures of achievement. And with increased size comes decreased flexibility of the organization; in short, inertia sets in. There is strong reason to believe that the tight organization--that is, the one that has both a meager budget and staff--can in fact accomplish objectives significantly out of proportion to its size.
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> Notable among the major programs that have been successfully carried out in this way is the development of the Sidewinder missile. This program, with a tiny staff at Naval Ordnance Testing Station, led to an extremely successful guided missile. The group was small enough that the approach could be kept completely coordinated and all major technical decisions were made by one man, William McLean. Mr. McLean was recently awarded a special Civil Service award for his accomplishment in this program. The program serves as a striking illustration of the efficiency achievable with a small staff.[2]

Figure 6 supports the "tight organization theory" of Roberts. The obligation rate for fiscal year 1968 reached its lowest point when the personnel strength of the Office of the DC/S (RD&S) reached its highest point.

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[1]Douglas G. Murphy, "Management Control of Research and Development in the United States Marine Corps" (unpublished M.B.A. thesis, The George Washington University, 1968), pp. 91-2.

[2]Edward B. Roberts, The Dynamics of Research and Development (New York: Harper and Row, Publishers, 1964), pp. 138-9.

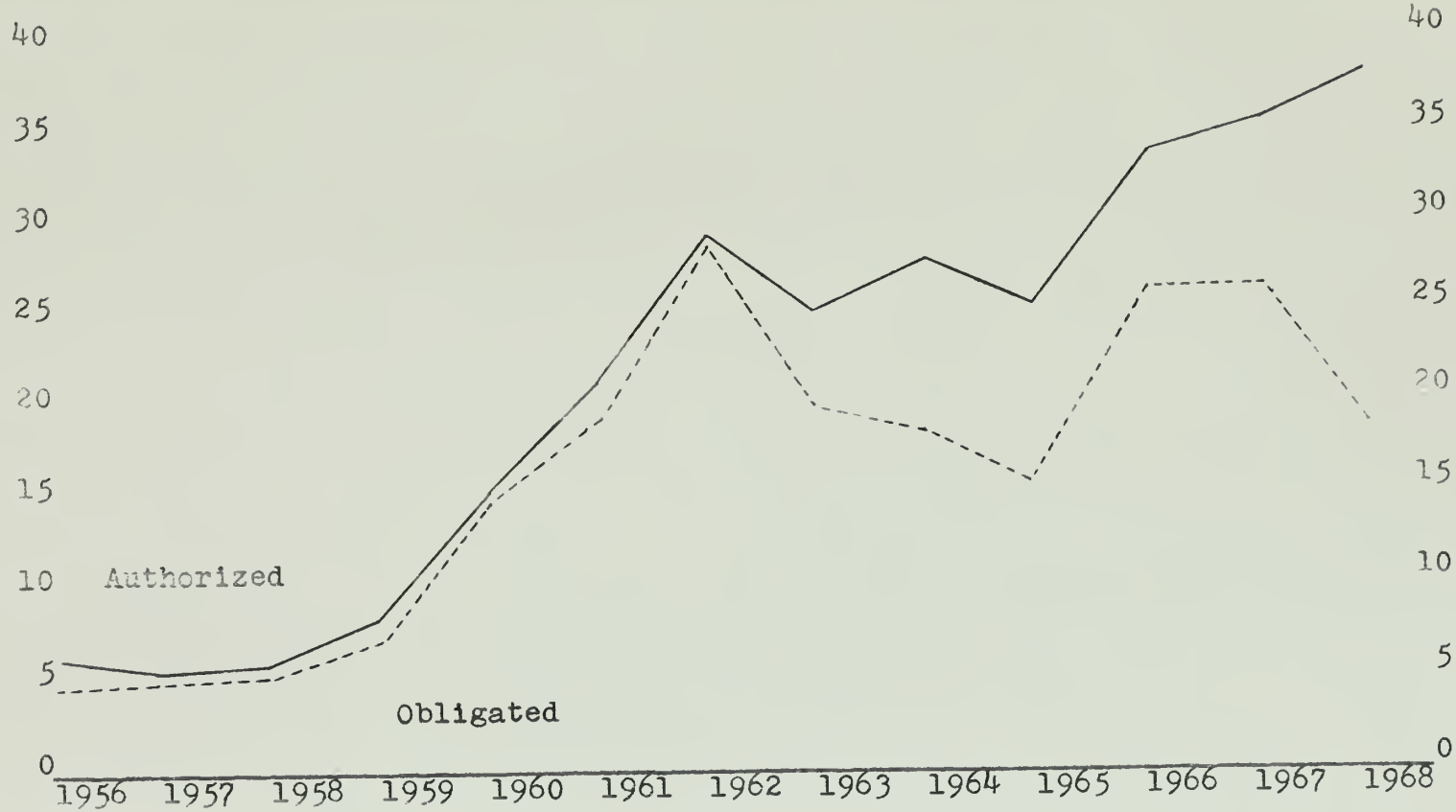

Figure 6.--TOTAL DOLLAR AMOUNT OBLIGATED OF TOTAL NEW OBLIGATIONAL AUTHORITY FISCAL YEARS 1956-1968, INCLUSIVE
(Money Amounts Rounded to Nearest Million)

Source: Headquarters, Marine Corps, Arlington, Va., Official Accounting Records.

Similarly, the obligation rate was at its highest when the staff of the DC/S (RD&S) was at its lowest level.

The Marine Corps should view its responsibilities for research and development in light of its overall mission. The author's views parallel those of Fehrenbach who, in discussing the preparedness of U.S. forces in the Korean War, writes, "And Marine leaders had never lost sight of their primary--their only--mission, which was to fight."[1]

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[1]T. H. Fehrenbach, This Kind of War (New York: The Macmillan Company, 1963), p. 175.

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